Wellhead Delineation

PWSID#:
5249004

WHPA

Indianapolis Water Company

Riverside and Fall Creek Well Fields

Capture Zone Delineation

INDIANAPOLIS WATER COMPANY
A NiSource Company

Prepared by

Wittman Hydro Planning Associates, Inc.
and
IWC Resources, Inc.

Report and Appendices

5249004

WHPA

Indianapolis Water Company

Riverside and Fall Creek Well Fields

Capture Zone Delineation

INDIANAPOLIS WATER COMPANY
A NiSource Company

Prepared by

Wittman Hydro Planning Associates, Inc.

and

IWC Resources, Inc.

Report and Appendices

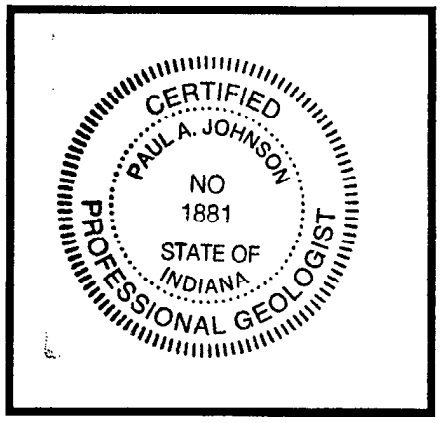
CERTIFICATION
INDIANA CERTIFIED PROFESSIONAL GEOLOGIST

I, Paul Allyn Johnson, a Certified Professional Geologist licensed in the State of Indiana under certificate number 1881, hereby certify that the work contained in this document, entitled " Indianapolis Water Company Riverside and Fall Creek Wellfields – Capture Zone Delineation" was performed by me, or under my direct supervision.

I hereby certify this work, to the best of my knowledge, is complete and accurate.

Signed and sealed this date, **March 27, 2000**

Paul A. Johnson, C.P.G. #1881
Senior Hydrologist
Engineering Department
Indianapolis Water Company



WHPA

JACK WITTMAN

President
jwittman@kiva.net

EDUCATION

Doctor of Philosophy, Environmental Science (Groundwater Modeling). March, 1999. School of Public and Environmental Affairs, Indiana University, Bloomington, IN 47405. Thesis: Multi-scale groundwater modeling for water supply protection. Advisor: Dr. Henk Haitjema.

Master of Science, Watershed Science (Hydrology), June 1987. Department of Natural Resources, Utah State University, Logan, UT 84321. Thesis: Spatial Distribution of Trampling Effects Under the Influence of Two Grazing Systems: infiltration, erosion, and soil consolidation. Advisor: Dr. Jim Dobrowalski.

Bachelor of Science, Environmental Studies, December 1978. Department of Natural Resources, Utah State University, Logan, UT 84321

RESEARCH INTERESTS

- Modeling Stream-Aquifer Interactions
- Applications of Flow and Transport Modeling to Water Resource Protection
- Regional and Local Groundwater Flow Modeling

PROFESSIONAL EXPERTISE

- Groundwater Modeling / Hydrology
- Contaminant Transport Modeling
- Evaluation of Land Use on Surface and Groundwater Quality

PROFESSIONAL EXPERIENCE

1987 - present **President** Wittman Hydro Planning Associates(WHPA), Inc. Bloomington, IN. I have conducted a variety of small and large groundwater modeling and engineering investigations as principle investigator and as sub-contractor. These projects ranged from developing a regional groundwater flow model for basin water management (subcontractor to a large engineering firm) to a surface and groundwater quality field investigation (PI). In Indiana the clients have included state agencies, small communities, and investor-owned water utilities.

1995 - 1998 **Senior Research Scientist.** Center for Urban Policy and the Environment, School of Public and Environmental Affairs, IUPUI, Indianapolis, IN 46204. Responsible for research on flow and transport of contaminants with application to ground and surface water supply planning and protection. Principle investigator on research funded by the Electric Power Research Institute (EPRI) that used contaminant transport modeling to determine the factors affecting the risk of community well field contamination. These included properties of the chemical, the geologic conditions of the site, and the dimensions of the potential release. Developed a technique for locally refining regional groundwater flow models to properly delineate capture zones for Indianapolis, Indiana. Provided technical support to the Indiana Department of Environmental Management Office of Drinking Water.

1990 - 1995 **Research Scientist - SPEA Groundwater Modeling Laboratory.** Bloomington, IN. Research scientist and administrative staff assistant to Dr. Henk Haitjema at the School of Public Policy and the Environment at IUB. Responsible for supra-regional modeling research effort as well as writing proposals, managing budgets, supervising graduate students in their modeling research, and working as a graduate teaching assistant for several courses taught by Dr. Haitjema. While there, research funding increased from approximately $20,00 to over $250,000 per year with core funding from the U.S. Department of Energy, the U.S. EPA (Subsurface Modeling Research Program), the U.S. Army Corps of Engineers, the U.S. Geological Survey, and the Indiana Department of Environmental Management.

1986 - 1987 **Technical Program Manager - Yakima Indian Nation.** Toppenish, WA. Managed a staff of scientists at the Tribal office and administered outside geotechnical engineering support contracts with national firms. Annual budget for technical staff and contractors was over $3.7 million per year. Wrote proposals for the office and managed the technical review of the geotechnical assessment of a Hanford Nuclear Repository. Served on several national review committees tracking the U.S. Department of Energy's plans to develop a deep geologic repository for spent nuclear fuel rods.

1984 - 1986 **Associate Director - High Level Nuclear Waste Office.** Utah Governor's Office, Salt Lake City, UT. Served as the technical lead for the State's response to the U.S. Department of Energy's proposal to site a deep geologic repository for nuclear waste in southeastern Utah. Coordinated the review of environmental impact assessments of the repository testing program by state agency staff and the Utah Geological and Mineral Survey. Wrote and delivered congressional testimony for the State and represented the governor's office in interactions with the Nuclear Regulatory Commission.

RESEARCH

Flow and Transport Modeling to Evaluate the Risk of Drinking Water Contamination. Contamination of water supplies is a problem throughout the county. This research uses flow and transport models to consider how the risks of contamination are conditionally dependent on the geology of the site, properties of the chemical, and characteristics of the release. The approach uses numerical experiments (one, two, and three-dimensional flow and transport models) to test the sensitivity of a solute pulse in the well to changes in different release characteristics. This research has applications to a variety of problems including source water protection and wellhead protection. This work has been funded by the Electric Power Research Institute and a consortium of power companies, local businesses, state agencies, and the Indianapolis Planning Department.

Climate Change Impacts on Groundwater Availability. Analytic element groundwater flow models are extremely well suited to very large scale modeling. This analytic element technique, coupled with a set of one and two-dimensional numerical models, was used in this research to investigate how long-term reductions in regional recharge rates could affect stream flow and groundwater availability in the regional Silurian-Devonian limestone bedrock aquifer in Indiana and Ohio and the overlying unconsolidated aquifers. This work was funded by the U.S. Department of Energy's National Institute for the Global Environmental Change.

Hydrologic Behavior of Glacial Aquifers. One of the problems we have in describing the hydraulic behavior of unconsolidated glacial deposits is the fact that limited data are available to describe the extent of the more permeable zones within the section. Consequently, hydrologists often simplify the picture by averaging the effect of these zones within the section. While this can be demonstrated to properly account for water balance, the implications of flow occurring through these discrete pathways on residence times and contaminant transport are extreme. This research has investigated the scale at which these local openings can alter the behavior of the system.

HONORS AND APPOINTMENTS

1997 Best of ACSP Award for the paper: *Using indices in environmental planning: Evaluating policies for wellfield protection* by the Association of Collegiate Schools of Planning and the American Institute of Certified Planners. Co-author with G. Lindsey and M. Rummel.

1993 (summer) Visiting Hydrologist, Institute for Inland Water Management (RIZA), The Netherlands. Invited to work with a team of hydrologists to validate a new multiple aquifer, variable density, analytic element model that was to be used for the national groundwater modeling program.

TEACHING EXPERIENCE

1998-1999 Indiana University - Bloomington. SPEA E475 Techniques in Environmental Science. Taught this class as an introduction to environmental investigations. Students were introduced to experimental design, sampling, and statistics, while laboratory sessions provided experience conducting experiments in environmental toxicology, aquatic chemistry, waste management, and wetlands delineation.

1992 & 1994 Indiana University - Bloomington. SPEA E555 Soil Science and Engineering. Taught a one semester graduate environmental science course on the behavior of soils with emphasis on the current methods for remediation (e.g., sparging, venting, bioremediation).

1992 Indiana University - Bloomington. SPEA E554 Groundwater Modeling. Teaching assistant to Dr. Henk Haitjema. This course covered the basics of groundwater flow modeling, data analysis, and problem solving. Lead several recitation sessions and lead the student teams in their course project.

1983 Utah State University - Logan, Utah. WS 542 Small Watershed Hydrology. Teaching assistant to Dr. Pete Hawkins. This course covered the basics of rainfall-runoff relationships and watershed modeling, data analysis, and problem solving. Lead recitation sessions and student teams in their course project.

PROFESSIONAL ACTIVITIES (A SELECTION)

Groundwater flow modeling near a large contaminant release in north-central Indiana. Evaluated the effects of various remediation options including pumping in the upper and lower aquifers of a sand and gravel outwash setting.

Impacts of the Capitol Cities Landing Project (increases in White River water levels) on groundwater levels in downtown Indianapolis, Indiana. Used regional analytic element model in conjunction with a local finite difference MODFLOW model to determine the effect of a planned increase in Whiter River water levels.

Wellhead protection services for a number of Indiana cities and towns, including: Indianapolis, Terre Haute, Muncie, Kokomo, Jeffersonville, Franklin, Greenwood, Bargersville, New Castle, Elwood, Warsaw, Odon, and other small communities.

Water Resource Planning for the City of Columbus, Indiana, both independently and in collaboration with Haitjema Consulting for Sieco Engineers, Inc. 1992-1996.

CURRENT PROFESSIONAL AND ACADEMIC ASSOCIATION MEMBERSHIPS

Indiana Water Resources Association

National Ground Water Association

American Water Works Association

American Geophysical Union

CIVIC ACTIVITIES

Board Member, Ellettsville Chamber of Commerce, Ellettsville, IN.

Board Member, Bloomington Youth Hockey Association, Bloomington, IN.

Founding Member, Greater Ellettsville Neighborhood Association, Ellettsville, IN.

PUBLICATIONS

Articles

1. Wittman, J. and H.M. Haitjema. Potential Effects of Climate Change on Groundwater Availability in Three Different Catchments in the Midwestern U.S.. (In review - *Climatic Change*). 1998.
2. Wittman, J. and H.M. Haitjema. Capture zones in locally divided aquifers: susceptibility implications. (In review - *Ground Water*). 1998.
3. Wittman, J. and H.M. Haitjema. Potential effects of climate change on groundwater availability in regional bedrock aquifers. (In review - *Climatic Change*). 1998.
4. Lindsey, G., J. Wittman, and M. Rummel. Using indices in environmental planning: Evaluating policies for wellfield protection. *Journal of Environmental Planning and Management*, 40(6) 685-703, 1997.
5. Wittman, J., Haitjema, H.M. and L. Studebaker. Recycling input data during analytic element modeling near Indianapolis, Indiana. *Journal of the American Water Resources Association*. 33(1) 47-54, 1997.

Recent Technical Reports

1. "Fate and transport modeling: Implication for wellhead protection". J. Wittman. (in press) Final report for the Electric Power Research Institute, Palo Alto, CA. 1998.
2. "Contaminant source inventory of the Indianapolis Water Company wellhead protection areas". J. Wittman and J. Rubleske. Final report to the Indianapolis Water Company. 1998.
3. "Capture Zone Delineation for the White River, Webb, and Sugar Creek Wellfields". J. Wittman, WHPA, Inc. Final report to the Indiana American Water Company.
4. "Evaluation of Risks of Potential Contaminants in Well Field Protection Areas". J. Wittman and J. Mundell. Report for Marion County Wellfield Technical Committee, Center for Urban Policy and the Envir. Report #97-E02. 1997.
5. "Capture Zone Delineation for the Municipal Well Fields, Columbus, Indiana". H.M. Haitjema, V. Kelson and J. Wittman for SIECO, Inc., Columbus IN, October 21, 1996.
6. "WhAEM: Program Documentation for the Wellhead Analytic Element Model". H.M. Haitjema, J. Wittman, V. Kelson, N. Bauch. U.S. EPA document EPA/600/R-94/210. 1994.
7. "Alluvial Aquifer Response to a Flood Pulse; Using Transient Boundary Conditions in a Local Screening Model". J. Wittman, J. Mundell, and J. Berndt. Contract Report to ATC, Inc. 1995.

INVITED PRESENTATIONS

1. "The Problem of Groundwater Contamination in Indiana". J. Wittman. Invited speaker at the Indiana Realtors Association Meeting. September, 1998.
2. "Well Field Protection in Indiana" J. Wittman. Invited speaker at the annual meeting of the Indiana Association of Planners. September, 1998.

3. "Use of Geologic Mapping in Groundwater Flow Modeling". J. Wittman. Invited panel member at the Great Lakes Geologic Mapping Forum. Indianapolis, IN. March 1997.
4. "Uncertainty in Capture Zone Delineation". Presentation to members of the Indianapolis City-County Council. December 1996.
5. "Hydrogeology of the Fall Creek Aquifer". Field trip / presentation for the Indiana Academy of Science Spring Meeting. April 1995.

SELECTED PRESENTIONS

1. "Evaluating the Risks of Potential Contaminants in Well Field Protection". J. Wittman. Presented at the 2nd Symposium on the Hydrogeology of Washington State. Olympia, WA. August 1997.
2. "Comprehensive Well Field Modeling for Marion County, Indiana" J. Wittman, H.M Haitjema, and G. Lindsey. Presented at the International Conference on Analytically Based Method of Groundwater modeling. Nunspeet, The Netherlands. April 1997.
3. "Evaluating the Risks of Chemical Compounds". J. Wittman. Presented at the Indiana Water Resources Association Fall Metting and Symposium, Lafayette, IN. December 1996.
4. "Well Field Protection and Capture Zone Modeling in Indiana". J. Wittman (presenter) and H.M. Haitjema. Presented at the Midwest Groundwater Conference, Columbia, MO. October 1995.
5. "Large Scale Groundwater Flow Model of Regional Bedrock Aquifers in the Midwest". J. Wittman and H.M. Haitjema. Presented at the international conference "Analytic Element Modeling of Groundwater Flow", Indianapolis, IN. April 1994.
6. "Towards a State-Wide Groundwater Modeling Plan". J. Wittman. Presented at the Indiana Water Resources Association Symposium. Spring Mill State Park, Mitchell, IN. June 1994.
7. "Climate Change Impacts on Groundwater Availability: An Application of Supra-Regional Groundwater Flow Modeling". J. Wittman and H.M. Haitjema. Presented at the International Association of Hydrological Sciences Fall Meeting, Orlando, FL. 1993.
8. "Capture Zone Modeling near Columbus, Indiana". J Wittman and H.M. Haitjema. Presented at the Indiana Water Resources Association Symposium. Indianapolis, IN. June 1992.

WHPA

Indianapolis Water Company

Riverside and Fall Creek Well Fields

Capture Zone Delineation

INDIANAPOLIS WATER COMPANY
A NiSource Company

March, 2000

WITTMAN HYDRO PLANNING ASSOCIATES, INC.

1626 Allen Lane ♦ P.O. Box 250 ♦ Ellettsville, Indiana 47429 ♦ phone (812) 876-9399 ♦ email: whpa@kiva.net

Indianapolis Water Company

Riverside and Fall Creek Well Fields

Capture Zone Delineation

Jack Wittman, Ph.D.

Wittman Hydro Planning Associates, Inc.

&

Paul Johnson, CPG

Indianapolis Water Company

Contents

Figures

APPENDICES

PLATES

FALL CREEK

RIVERSIDE/WHITE RIVER

1. Introduction

This report describes the delineation of time-of-travel (TOT) capture zones for the Riverside and Fall Creek well fields in north-central Marion County, Indiana. This modeling analysis is one part of a ongoing wellhead protection planning effort being conducted by the Indianapolis Water Company (IWC) for the well fields serving the city of Indianapolis. The IWC Riverside well field currently has the capacity to pump over 11 MGD from two different pumping centers (Riverside and White River) along the confluence of Fall Creek and the White River. Fall Creek well field currently has the capacity to pump 7 MGD from wells on either side of Fall Creek (Figure 1). Residential and commercial development in Indianapolis during the past ten years has grown at a moderate pace. In order to accommodate this growth, the capacity of the Indianapolis Water Company groundwater withdrawal in the area will more than double within five to ten years (Figure 2). Wellhead protection planning is one way for IWC and the City of Indianapolis to assure a long-term water supply. The objective of this program is to protect against contamination from releases inside the capture zones of public water supply wells.

This report is organized into four sections. The first introduces the project and the objectives of the report, the second section describes the hydrogeologic setting of the community water supply wells and explains the modeling technique, the third section presents the groundwater flow modeling results, and the fourth outlines the WHPA delineations.

The hydrogeologic setting is described in general terms in the introduction and again in more detail in the second section. A geologic cross section report was produced that includes each of the cross sections used to produce the conceptual model of the aquifer system in the vicinity of the well field. These data, along with the literature review, provided the basis for interpretations made in the report. The modeling answered the following questions:

- How does hydrogeologic uncertainty near the well fields affect the dimensions and shape of the delineated capture zones?
- How important is pumping from high capacity wells in the vicinity of the public water supply well fields to the WHPAs?
- How important are the local surface water features, including the White River and Fall Creek, as sources of water for the well fields?

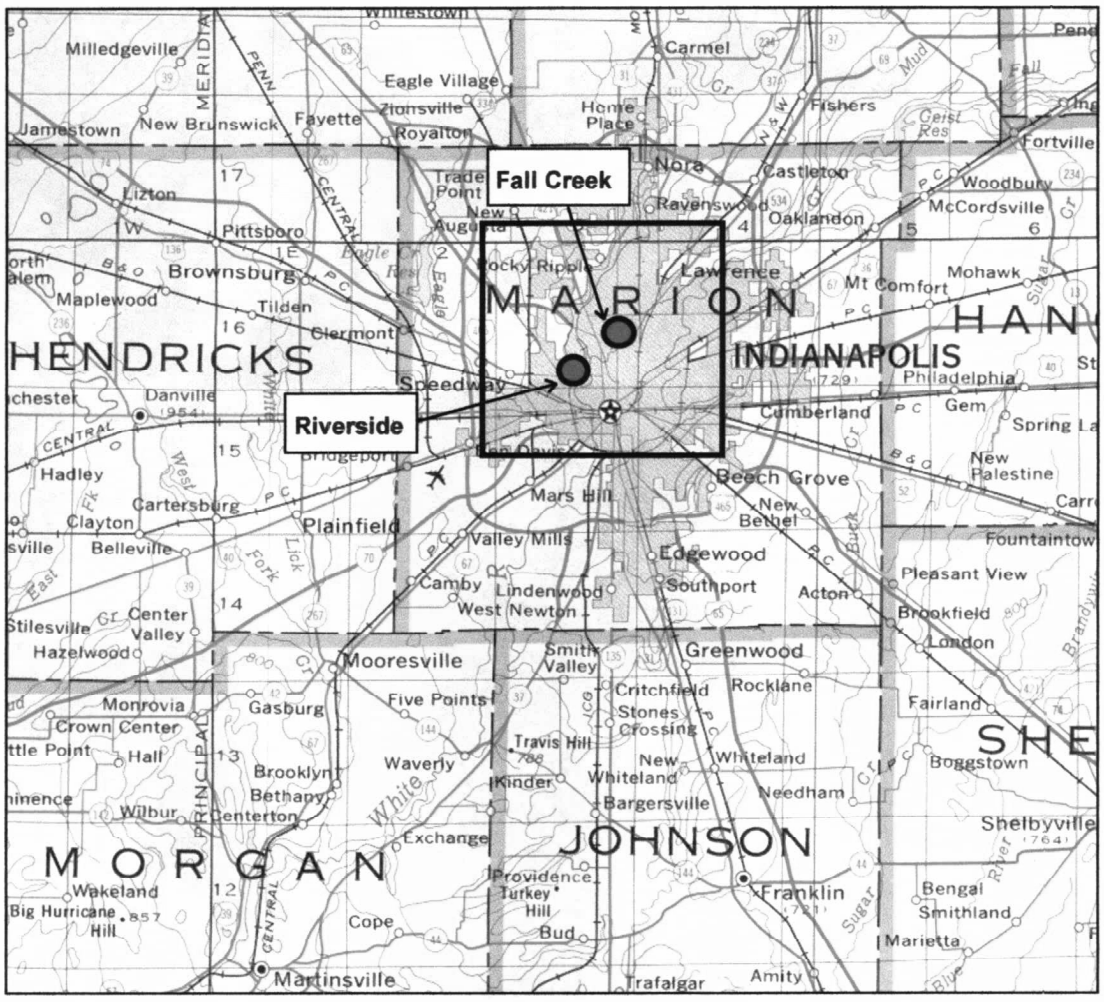


Figure 1. Location of the two well fields within the area of interest in central Marion County, Indiana. The regional model domain includes the area shown in this figure.

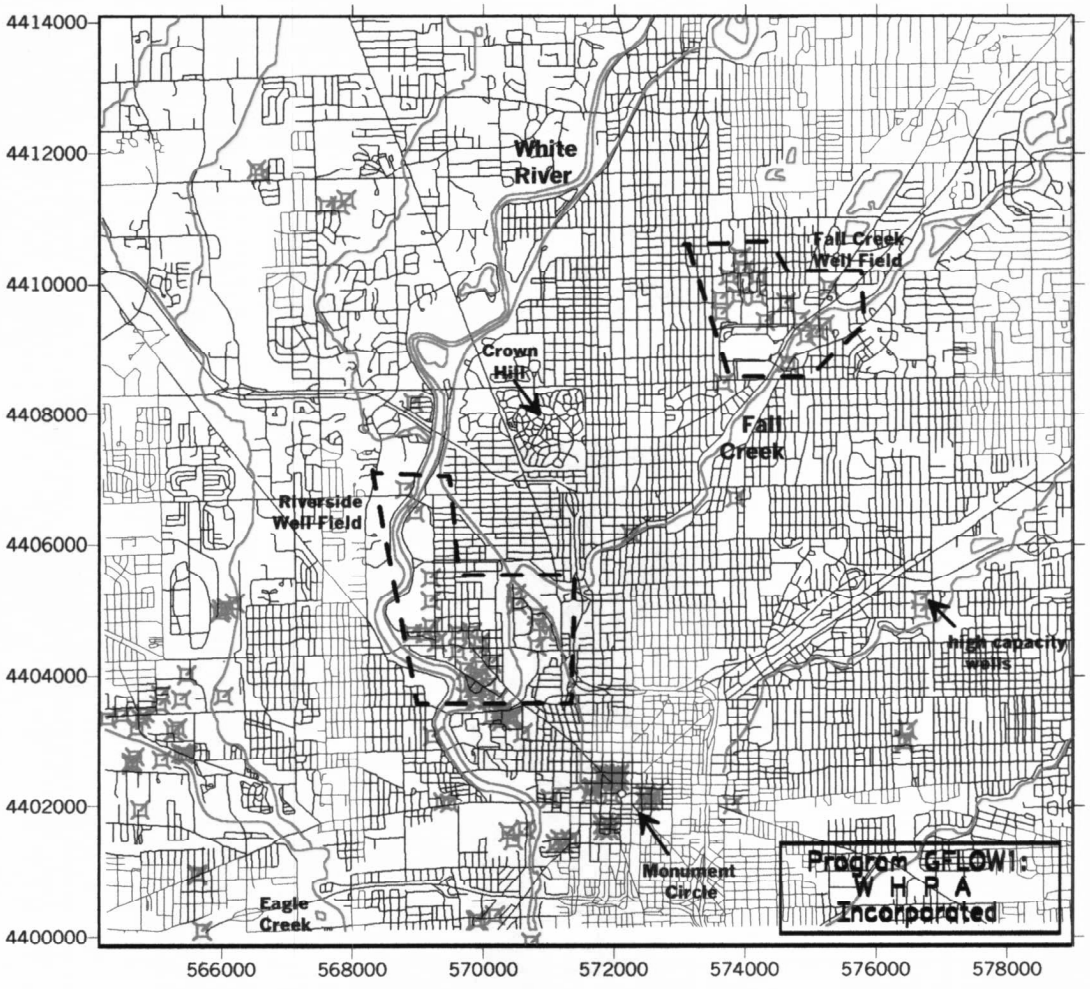


Figure 2. Location of the Riverside and Fall Creek well fields showing proposed and existing public water supply wells and neighboring high capacity wells in downtown Indianapolis.

1.1 Study Objectives

The objective of this report is to delineate the time-of-travel capture zones around the IWC Riverside and Fall Creek well fields. This information should be used by the IWC and the Marion County Well Field Protection Program to make decisions about how to protect the drinking water supply of Indianapolis from contamination. The modeling was completed in two steps: 1) regional modeling of groundwater flow in the area surrounding the well field, and 2) detailed modeling near the well fields to delineate the WHPAs. The results of the modeling and the potential contaminant source inventory are used together to develop a wellhead protection management plan.

1.2 Approach

The groundwater flow modeling for this project followed a general approach outlined in previous reports by Hunt et al. (1998) and Wittman and Haitjema (1995). After collecting regional and local hydrogeologic data, a set of possible conceptual geologic models were developed. These models were converted into a set of regional/local flow models for the area around the well field. The regional modeling was calibrated by first comparing results to estimated base flow in local streams (using information provided by the USGS) and then by evaluating the differences between water levels recorded on water well drilling logs from the unconsolidated and limestone aquifers in the region and modeled water levels. After calibrating the regional model, a sensitivity analysis was conducted to determine the degree to which existing hydrogeologic uncertainty altered the outcome of the analysis. The final delineation is presented as a set of capture zones reflecting a range of values for the hydrogeologic parameters used in the local modeling (Appendix A).

1.3 Previous Hydrogeologic Investigations

The water resources of Marion County were first mapped in 1974 by the Indiana Department of Natural Resources (Herring 1974). Herring later produced a more detailed description of groundwater resources in Marion County that included maps of transmissivity in both the unconsolidated aquifer and the underlying limestone aquifer (Herring 1976). In that work, Herring showed that the transmissivity in the outwash and limestone aquifers near downtown Indianapolis decrease rapidly to the west of the White River and south of Fall Creek (Figure 3). Meyer (1978) and Meyer and others (1975) published analyses of field data in the White River basin describing hydraulic properties of the unconsolidated materials. This work, along with an investigation of seepage losses from the Indianapolis Water Canal (Meyer 1979), were used to estimate the hydraulic resistance of the stream bed of the White River to be between 100 and 1 days. Later Smith (1983) used groundwater flow modeling to evaluate the production potential of the outwash aquifer in Marion County. He found that the thickness of the outwash aquifer varied from 60 to 120 feet, recharge varied from one foot per year in the outwash to 4 inches per year in the till, and the transmissivity of the system varied between five to ten thousand ft^2/day.

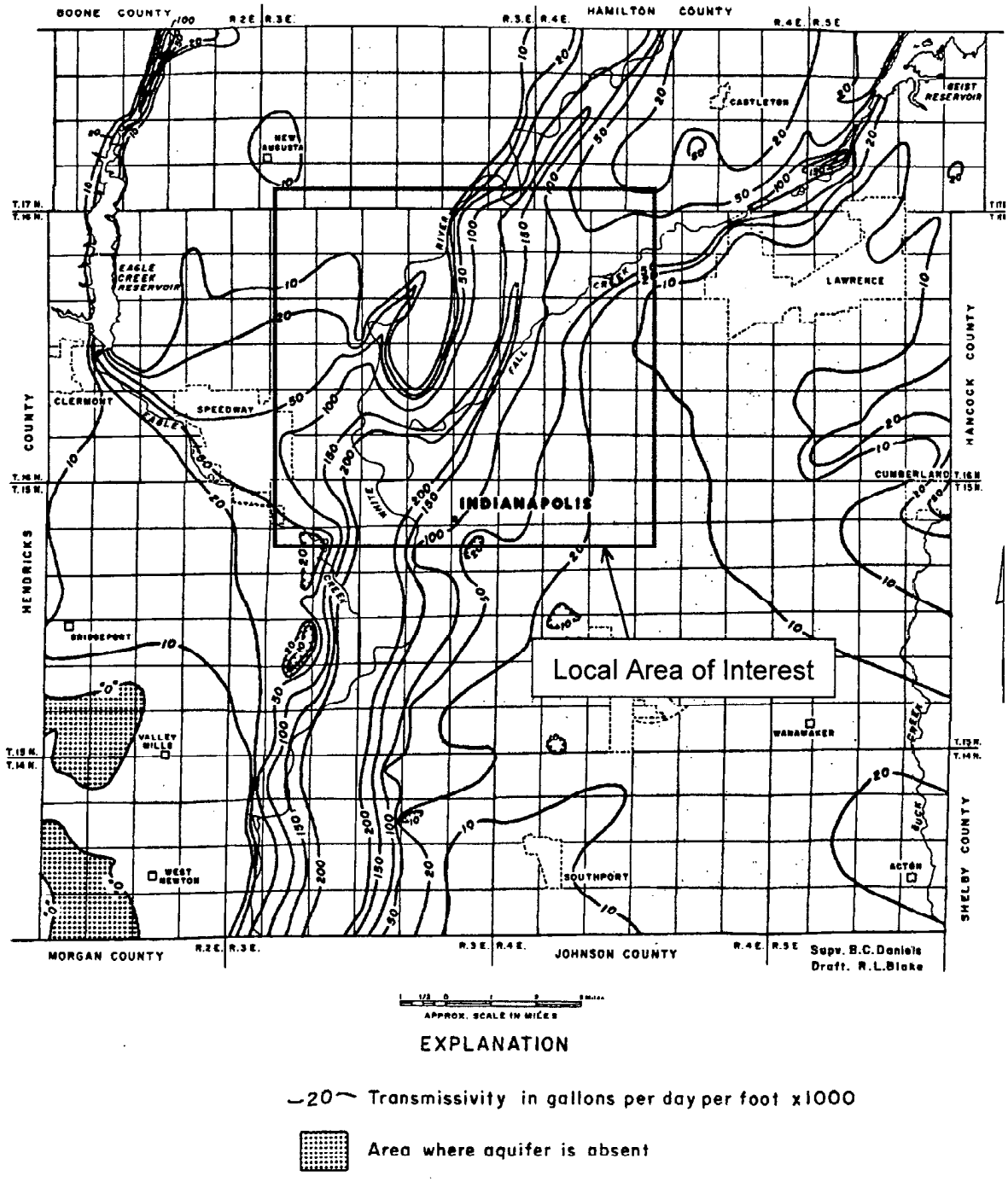


Figure 3. Mapped transmissivity distribution in the unconsolidated material of Marion County (from Herring 1976).

The Indiana Geological Survey produced several maps and analyses of the hydrogeology of Marion County (Brown and others 1995, Hartke and others 1980). The maps produced by Brown and others (1995) illustrate the distribution of glacial deposits in the White River basin. The maps identified the extent of the aquifers and clay layers that could affect regional or local groundwater flow in the county. In 1994 the USGS compiled many of these earlier works to produce a state-wide geologic analysis of aquifers in the Hydrogeologic Atlas of Indiana (Fenelon and others, 1994). The cross sections that were included in the report show an unconfined outwash aquifer near the major streams and confined aquifers further upland. The USGS recently completed an investigation of water quality in the White River Basin as a part of the National Water Quality Assessment Program (NAWQA). The overall goal of this long-term national project is to provide information about surface and groundwater quality in Central Indiana.

Regional groundwater modeling has been conducted to evaluate the production potential of the outwash aquifer along the White River and Fall Creek (Meyer et al. 1975). Later, Herring (1976) synthesized the previous work and described the groundwater resources of the county that included geologic cross-sections and estimates of aquifer recharge (see Figure 4). This work preceded the capture zone delineation done by Wittman and Haitjema (1995) for three of the IWC well fields. Their regional analysis and conceptual geologic models were based on a more recently produced set of unpublished geologic cross-sections that showed an extensive confined aquifer in the northeastern portion of the county (Ferguson 1995) and laterally extensive clay layers in the central part of the county. Wittman and Haitjema used a single aquifer regional model and linked that with local multiple-aquifer models (both finite difference and analytic element) to evaluate the source areas of the expanding IWC and Lawrence pumping centers. The results of their work indicated that each well field could produce adequate supplies as long as there was little hydraulic resistance between the aquifer and the River or Creek adjacent to the wells.

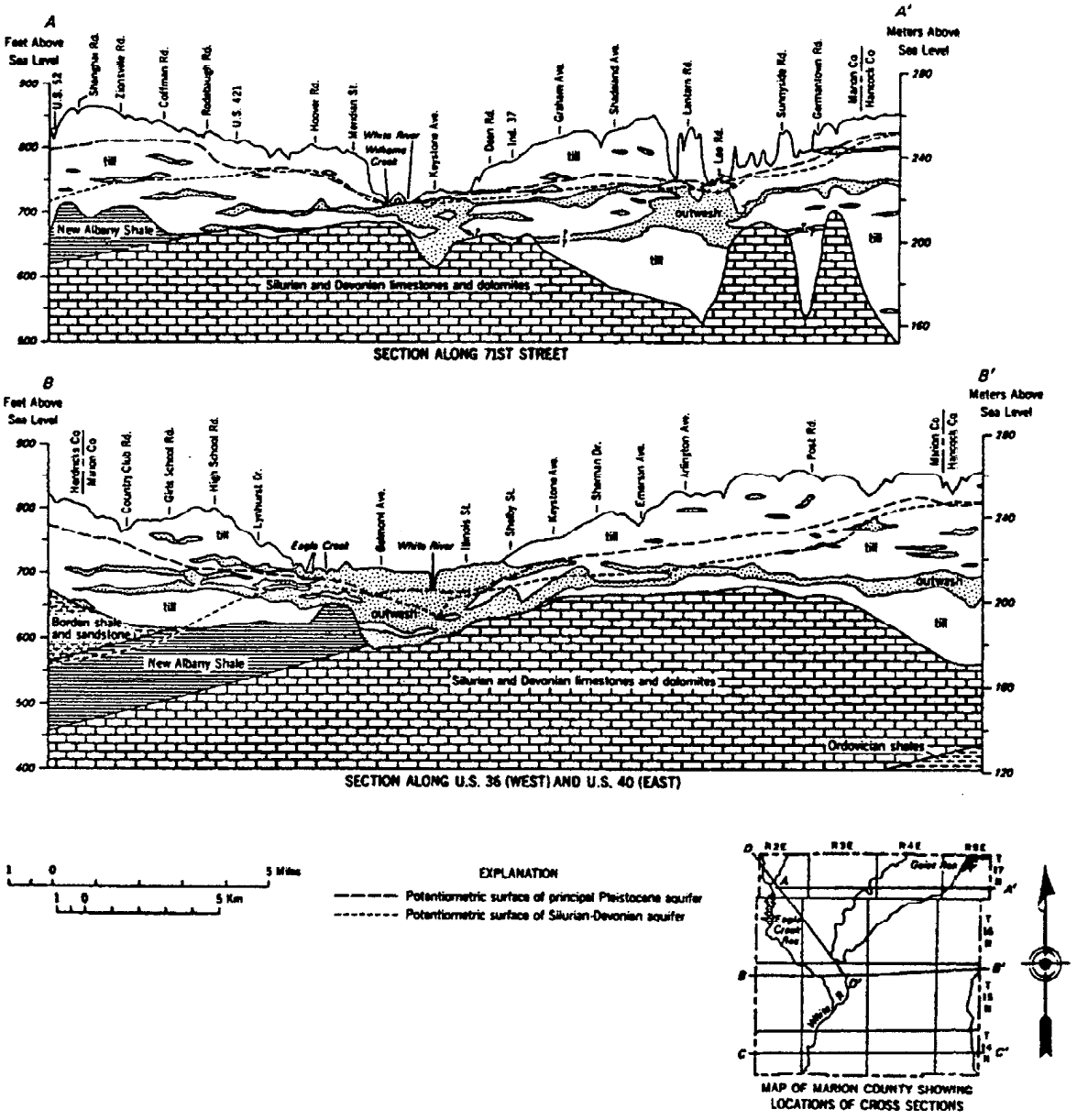


Figure 4. Example W-E cross-sections from Herring (1976) illustrating the general relationship of the hydrostratigraphic units and potentiometric surfaces near the Riverside and Fall Creek well fields.

2. Regional Hydrogeology

There are three water supply aquifers in Marion County: 1) the limestone bedrock aquifer used by the Lawrence Water Company (LWC) well field on Richardt Street, 2) the sand and gravel deposits that are productive unconfined aquifers along the streams and confined aquifers within the till deposits (Brown and others 1995), and 3) the less transmissive overlying till formation composed of silt, clay and discontinuous sand lenses (Meyer and others 1975). USGS and DNR studies have consistently found that both the White River and Fall Creek are hydraulically well connected to the sand and gravel aquifers through the central part of the county (Meyer 1979, Saul and Robinson 1989). In an investigation of the hydraulics of the IWC water supply canal that carries water through the study area, Meyer (1979) found that the canal lost water to the aquifer and, in some areas, may be a groundwater discharge area. Because so few wells have been drilled in the area, there is little information about the distribution of sand and gravel deposits north of the White River - Fall Creek confluence around the Crown Hill Cemetery. Local and regional data as well as the previously cited technical reports all interpret what little data is available to indicate that the area near Crown Hill is predominantly clay till and the aquifer is not very transmissive. Consultants reports of pump tests of the sand and gravel formation in the middle of the county show that the transmissivity of the outwash aquifer is in the range of 35,000 ft^2/day (Mundell et al. 1995).

Recharge into the sandy alluvial deposits along the White River and Fall Creek is higher than what is found in the clay till away from the streams. The discontinuous sand and gravel aquifers in the upland area are covered by lower permeability soils that are recharged at lower rates that the outwash along the stream. Along the margins of the White River - Fall Creek flood plain, recharge rates are further limited by the steep slopes that increase surface runoff.

The limestone bedrock aquifer is fundamentally different than the unconsolidated aquifers in at least two ways: 1) groundwater flow through the aquifer is through solution widened openings rather than through the rock matrix, and 2) there is almost no information about the connection of this system to the overlying aquifers. Approximately one half of the high capacity wells drilled in the northeastern part of the county are pumping from sand and gravel formations that are separated from the land surface by 40-70 feet of clay till. The outwash along the streams is recharged by infiltrating precipitation. This water, along with the recharge that occurs further away,discharges from the aquifer as base flow into the White River and Fall Creek.

Pumping in the IWC well fields and the industrial wells in the area changes the low system; a fraction of the water that naturally discharged into the creek is intercepted by the high capacity wells and diverted into either drinking water treatment and distribution systems or industrial processes. When a well is situated close to a stream, pumping will cause water levels in the aquifer to fall, and may reverse the hydraulic gradient.

In order to determine the source areas for the proposed production wells, it is important to understand how they would affect the regional groundwater flow system. A regional flow model provides information about the relative importance of regional recharge rates and contrasts in hydraulic properties in the aquifer system. Groundwater flow patterns are defined by the distribution of sources and sinks, as well as the hydraulic properties of the aquifer material. These same factors determine the time it takes for water to reach the wells from any point in the saturated subsurface (travel times). The following sections describe the hydrogeology of the area of interest and a conceptual model of the aquifers in the region.

2.1 Geology

The IWC well fields are located along the White River and on either side of Fall Creek upstream of the confluence. In this area of Marion County there is a pre-glacial bedrock valley filled with sand, gravel, and some clay deposits (see Figure 5). The thickness of the unconsolidated material in this area is between 85 and 100 feet as the bedrock elevations range from just under 600 feet to more and 725 (msl) north of the Fall Creek well field (Meyer and others 1975, Gray 1983). In some areas northeast of the area of interest the unconsolidated section has a low transmissivity and many high capacity wells are developed in the deeper limestone bedrock. The earliest wells drilled in both the IWC well fields were drilled 200 - 400 feet deep into the limestone bedrock. The wells producing water from the limestone intersect solution widened openings that are distributed throughout the area. The following is a more detailed description of each of the aquifers mapped by the USGS in this area; the outwash aquifer along the streams (Meyer and others 1975), the confined sand and gravel aquifers in the till, and the limestone bedrock aquifer.

2.1.1 Outwash Aquifer

In the Northern part of the basin, the White River outwash was deposited by the rapidly moving meltwater of the continental glaciers. In the northeastern part of Marion, County the deposits are

just a few hundred to a thousand feet wide channel of coarse sand and gravel in an irregularly shaped valley roughly coinciding with the White River and Fall Creek flood plains. In most locations the outwash deposits are very productive but it is not clear where the these deposits are locally separated by clay lenses in all areas of the county. This aquifer seems to intersect the layered aquifers in the surrounding till material away from the streams. The saturated thickness of the outwash varies between 60 and 100 feet in the region. The transmissivity of the aquifer (the product of the hydraulic conductivity and saturated thickness of the aquifer) has been estimated to be in the range of 25,000 - 35,000 ft^2/day (Herring, 1976) and is highest just to the south of the Riverside well field.

Water moves into this aquifer by recharge from precipitation and receives inflow from the till along the perimeter. Water budget studies in the White River basin by the USGS suggest that infiltration rates into the outwash system along the White River may be in the range of 12 inches/year (Meyer and others 1975). In addition to areal recharge, the aquifer receives water along the perimeter from the confined aquifers within the till plain discharging into the outwash. Pump tests indicate that there is little hydraulic resistance between surface water and the outwash aquifer. There is less information about anisotropy in the system or the interaction with the regional limestone.

In a geologic mapping study performed by the Indiana Geological Survey, clay layers were mapped in the vicinity of each of the two IWC well fields (Brown, et al. 1995). These clay layers locally separate the aquifer into an upper and lower zone and may alter groundwater flow patterns near the well field. The effect of these clay layers on the source areas of the wells will be investigated in the delineation of capture zones.

2.1.2 Sand and Gravel Aquifers in the Till

Sand and gravel aquifers have been mapped within the till formations near the well field. The thicker unconsolidated deposits almost always includes some poorly connected layers of sand and gravel, as well as some more continuous layers of continuous sand and gravel that may be more or less separated by clay layers. An analysis of the distribution of these aquifers within the till (hereinafter referred to as "intertill aquifers") was done by reviewing the literature and by direct evaluation of the well log records from the area. In some parts of the study area there is no significant transmissivity above bedrock. However, in most areas the well log data indicate that

the lower (deeper) section of the unconsolidated section the till often includes fairly continuous, pre-Illinoisan, sand and gravel layers. Figure 6 is an isopach map produced by contouring the total thickness of individual sand and gravel layers identified in DNR well logs across the area of interest. This isopach map is generally consistent with the USGS maps of individual aquifer thicknesses found in Meyer and others (1975).

2.1.3 Limestone Bedrock Aquifer

East of the White River the limestone aquifer subcrops below the unconsolidated glacial deposits. In some areas the limestone formation has solution enlarged fractures that make it a productive aquifer. The first wells used by public water supply systems in Marion County were drilled in to the limestone aquifer over 100 years ago. Deep wells were drilled into the bedrock to supplement surface water supplies from the White River during prolonged drought periods. Because the transmissivity in this aquifer is locally high in the central and northeastern part of the county, a number of water users in the area have developed deep limestone wells. Herring (1976) used pump test and specific capacity data to estimate that the transmissivity of the aquifer varies between a low of a few hundred ft^2/day to over ten thousand ft^2/day (see Figure 7). The hydraulic gradients may vary between 0.001 and 0.01 depending on the interpretation of well logs (Herring 1976). Based on available hydrogeologic data in the area (including DNR well log records) and the bedrock topography (see Figure 5) it is likely that the limestone aquifer is hydraulically connected to the outwash sand and gravel aquifer. Further from the streams in the till deposits, water levels recorded in residential wells indicate that the limestone aquifer is hydraulically isolated from the upper intertill aquifer system. Department of Natural Resources records indicate that the potentiometric surface of the limestone aquifer in the recharge areas away from the streams is between 30 to 50 feet lower than the upper aquifers (Fenelon and others 1994)

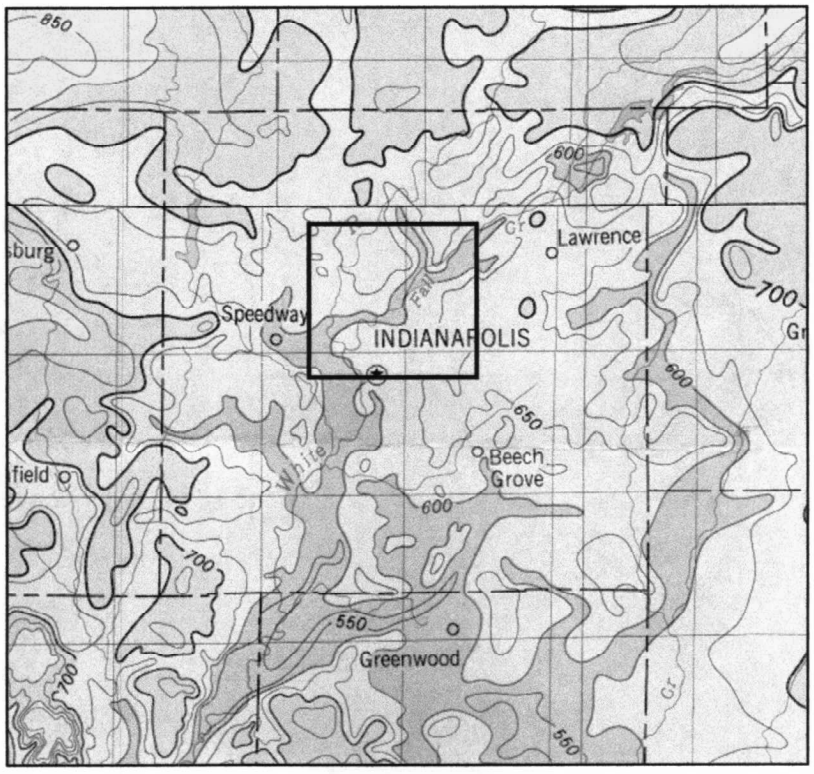


Figure 5. Topography of the bedrock surface from Gray (1982). The interior border shows the area of interest near the Riverside and Fall Creek well fields. As indicated on the contour labels, yellow-brown areas are higher elevation, darker green areas are bedrock valleys.

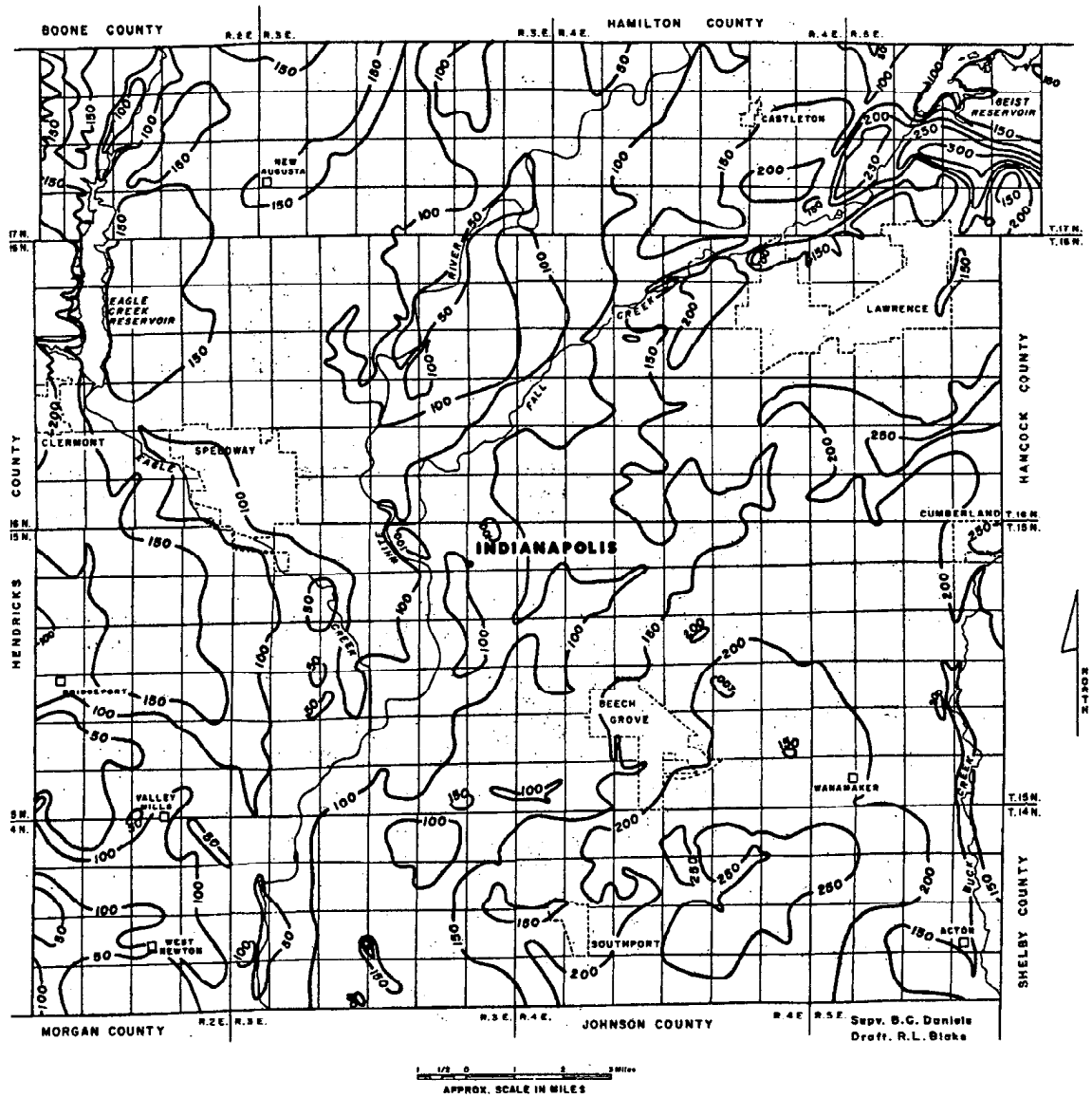


Figure 6. Sand and gravel thickness based on IDNR drilling records from Herring (1976).

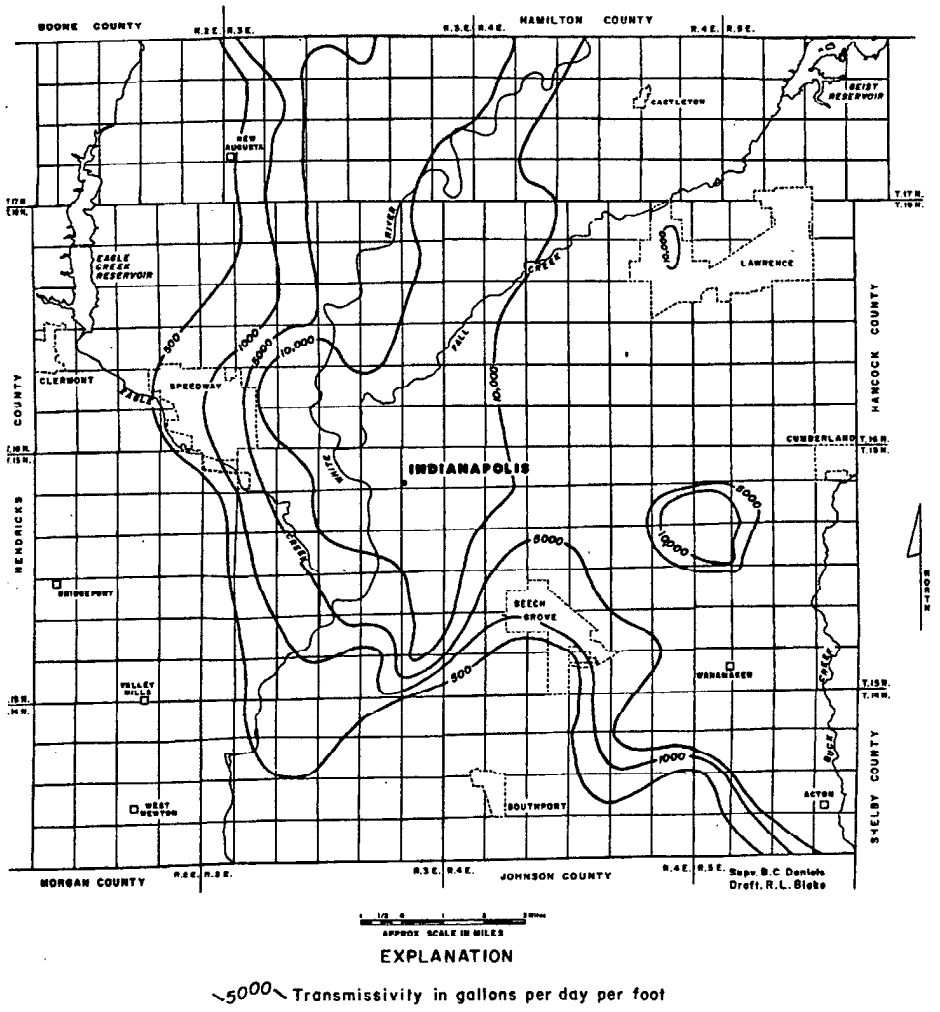


Figure 7. Mapped transmissivity distribution in the limestone bedrock of Marion County (from Herring 1976).

2.2 Hydrology

Of the 37 inches of precipitation that that fall each year, about 12 inches per year flow out in streams and rivers. This means that approximately 35 percent of the average annual precipitation leaves the basin as stream flow. The water that does not exit the basin as surface water is returned to the atmosphere as evaporation and transpiration or infiltrates the ground an becomes groundwater. The perennial streams near the well field have the highest average flows in the spring. The seasonal low flow often occurs in the late fall or early winter. USGS stream flow records indicate that in all of the streams, spring low flow (from March through May) is about two times the low flows observed between December and February (Fowler and Wilson 1996). Stream flow is composed of groundwater that is discharging from aquifers and more recent water that is draining off of the land surface during and immediately following precipitation events. It has been estimated that groundwater discharge into Fall Creek and the White River (also referred to as "base flow") is about 4 inches/year or $^1/_3$ of the total stream flow (Wittman and Haitjema 1995).

2.2.1 Streams and Surface Water

There are three main streams that drain Marion County; the West Fork White River, Fall Creek (including Geist Reservoir), Eagle Creek (including Eagle Creek Reservoir) and all of their tributaries (see Figure 8). The watershed area of Geist Reservoir catchment is 215 mi^2 above the dam, while Mud Creek drains 43 mi^2 (Hoggart 1975). The area draining into Eagle Creek and Eagle Creek Reservoir is 174 mi^2 above the dam, with Little Eagle Creek draining an additional 7 mi^2 (Hoggart 1975). The flow in each reservoir below the dam is regulated by controlled releases.

Wells intercept some portion of the groundwater that is on its way to the stream. If a well is pumping immediately adjacent to a stream, the wells could locally lower the water levels in the aquifer, and reverse the natural gradient. In this case the well is said to be "inducing recharge" from the stream. Consequently, the hydraulic connection between the streams and the aquifer can impact the development of groundwater resources. There have been several studies of the hydraulic connection between the sand and gravel aquifers and the streams in Marion County (Meyer 1979, Saul and Robinson 1989, Meyer 1978). The general conclusion of these investigations is that the connection may vary locally but where the aquifer is composed of coarse sand and gravel, their is little resistance between the White River and the alluvial aquifer.

None of these investigations evaluated the hydraulic interaction between the streams and the deeper limestone bedrock aquifer nor did they consider the effects of smaller streams and creeks.

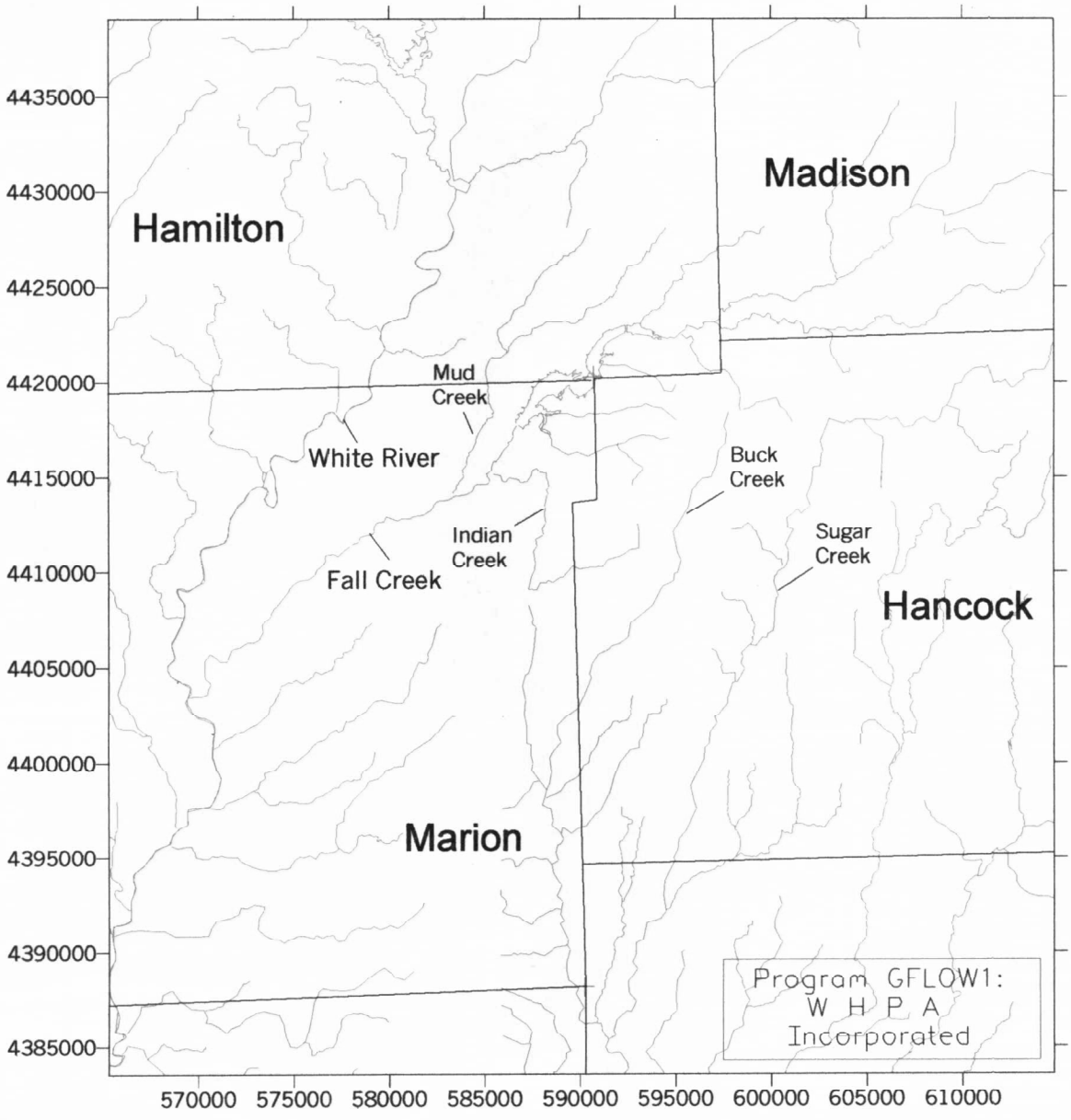


Figure 8. Surface water features in the regional model domain.

2.2.2 Potentiometric Surface(s)

The water levels in the aquifers are determined by the hydraulic properties of each aquifer, as well as the pumping rates of the high capacity wells, recharge rates (or leakage rates) into or out of the system, and the location of boundary conditions within the system. The water levels in each of the aquifers also varies with time. During prolonged drought (like the drought experienced in early 1960's) annual maximum water levels declined in observation wells throughout Marion County (Meyer and others 1975). These and other reports indicate that, as a general rule, the highest groundwater levels during the year are recorded at the start of the growing season and the lowest usually is observed during the late fall (Martin and Craig 1990). No water level measurements were made specifically for this report. Instead, the Indiana Department of Natural Resources water well records were used as the calibration targets for flow modeling.

2.3 Regional Conceptual Model

A groundwater flow model is a simplification of the natural hydrogeologic system. The glacial history of the Midwest assures that, with rare exception, the geology of the unconsolidated material in Indiana is complex, (i.e., there is a great deal of variability in the distribution of Quaternary deposits). In addition, there is natural seasonal variation built into the cycle of recharge in the system. Imposed upon this are engineered features that can not always be anticipated, like changes in pumping rates in neighboring high capacity wells. Fortunately, the source areas of wells in this setting is relatively insensitive to local variation in aquifer properties and short duration temporal variability.

The conceptual model used for the groundwater flow modeling assumes that there is a single aquifer with an impermeable horizontal base and constant thickness, unless flow becomes unconfined (see Figure 9). The local model used for capture zone delineation further refine this conceptualization to include the effects of clay layers and the distribution of pumping between the bedrock and the outwash aquifers. The model also treats the water levels in the surface waters and the pumping rates in the wells as though they represent long-term average conditions. This steady state approach is appropriate for the problem of estimating long term (e.g., 5 - 10 year) residence times in the aquifer. The variation in aquifer properties is lumped to distinguish between areas with higher or lower transmissivity. The following section describes the approach used to model flow in the area of interest.

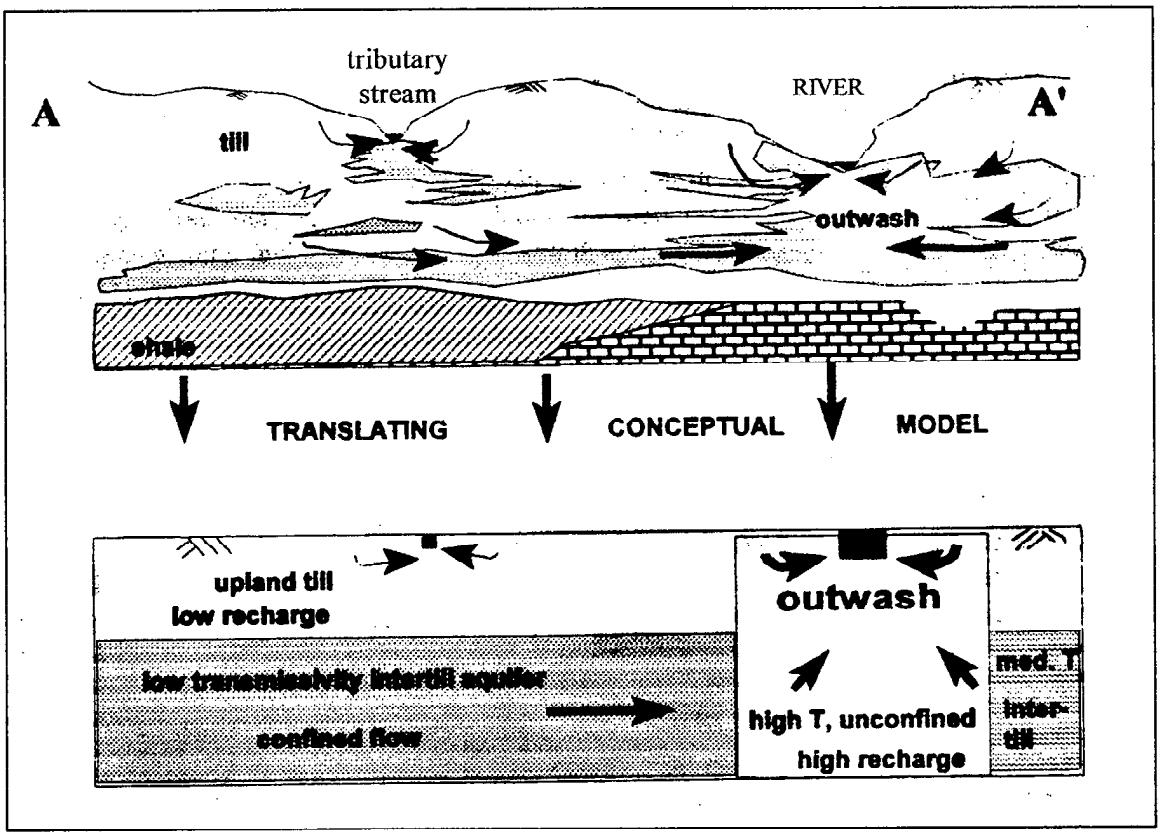


Figure 9. Example of a conceptual geologic cross-section and the conceptualization used in groundwater flow modeling.

3. Groundwater Flow Modeling

The approach used in this investigation was to first build and calibrate a regional flow model and then, near the well field, add more detail and convert to a local simulation of flow within the well field area. In this way the local model contains the information about regional flow that was learned during the regional analysis. The regional model represented boundary conditions such as rivers and streams in a coarse manner, while the aquifer system was modeled as a single aquifer with locally varying properties. The conceptual geologic model used for the regional analysis was based on recent work in the area (Wittman and Haitjema 1995) and water resource investigations conducted over the past two decades in central Indiana by the U.S. Geological Survey and the State Department of Natural Resources (Fenelon et al. 1992, Brown, et al. 1995). All of this work was supplemented by our analyses of well log information obtained through the Indiana Department of Natural Resources (see Plates FC-2 through FC-5 and Plates RS-2 through RS-5).

The idea of systematically "nesting" more detailed local models in regional models is not new. Ward and others (1987) used this approach when modeling a hazardous waste site with a finite difference model. In many cases this regional-to-local technique is not necessary. In some simple settings with clearly defined boundary conditions, a small scale, local model may be adequate to identify the capture zones of a well. This is typically not the case for wellhead protection modeling, because the area of interest can be quite large to account for regional flow into the area of interest.

The modeling process included the following eight steps:

1) Review the literature.
2) Collect data, for example lithological information from well logs, locations and pumping rates for high-capacity wells.
3) Construct maps of the region, including maps of the wells and boundary conditions.
4) Analyze the hydrogeologic data, construct cross-sections and maps.
5) Develop a regional conceptual model based on the data.
6) Simulate the regional groundwater flow system using analytic elements consistent with the regional conceptual model.
7) Extract local finite difference grids from the regional model at each well field.

8) Delineate capture zones with a range of alternate models using MODFLOW and GFLOW.

3.1 Code Selection and Assumptions

The analytic element method (AEM) model code GFLOW was selected for the regional modeling conducted for this project. The AEM has unique capabilities when modeling very large domains and for modeling base flow in streams. In addition, the GFLOW code has utilities that allow the user to extract MODFLOW input files for any subdomain within the region. The USEPA has adopted the analytic element technique in the new code WhAEM (Haitjema et al. 1994). A complete discussion of the theory of the analytic element method can be found in Strack (1989). An example input file for GFLOW is presented in Appendix B.

Analytic element models represent flow by mathematically superimposing *analytic elements*, mathematical functions that are each solutions for a single hydraulic feature, e.g. a well or a short segment of a stream. These solutions do not require the use of a grid or mesh, instead the AEM provides a mathematically exact solution of the problem at all points in the flow domain. The lack of a model grid is most important when modeling large domains. A large regional aquifer modeled in a numerical model might require hundreds of thousands of cells in a numerical grid, but only a few hundred analytic elements. See Hunt et al. (1999) for a more detailed discussion of large-scale modeling with the AEM. For each of the local delineations a local MODFLOW grid was extracted from the regional model to evaluate the effects of multiple aquifer flow and flow near mapped clay layers. MODFLOW allowed us to evaluate the effects of local hydrogeologic variability as well as the effects of pumping from different aquifers. A general discussion of nesting finite difference models within regional analytic element models can be found in Hunt et al. (1999).

3.1.1 Simulating Regional Boundary Conditions (GFLOW)

The boundary conditions in an analytic element model are not conditions imposed by the modeler at the perimeter of a finite grid domain. Instead, the boundary conditions are the hydrologic features, such as streams and lakes, that control flow in the aquifer. Surface water features are discretized as *line sink* elements; each line sink represents a small section of the stream. In the area of interest, particularly near a well, it is necessary to use many small line sinks to represent streams. Far from the area of interest (the far-field), less detail is required: fewer, much longer line sinks are used.

In GFLOW, it is possible to represent the hydraulic resistance of streams and rivers. The stream resistance represents the interaction between the stream and aquifer, accounting for a layer of silt

or clay, or perhaps an intervening strata, between the water level in the stream and the water level in the aquifer. In addition, GFLOW allows the total groundwater inflow and outflow along a stream reach to be computed. This baseflow routing model provides an important check on the model results for calibration purposes.

3.1.2 Simulating Regional Aquifer Domains

In the study area, variations in hydraulic properties of the unconsolidated section often coincide with the alluvial deposits along stream channels. Alluvial deposits have generally higher transmissivity and higher recharge rates than the upland till. Low transmissivity areas can be either due to differences in the hydraulic conductivity of the aquifer material (e.g., extensive clay deposits) or significant changes in the thickness of the unconsolidated section (e.g., a bedrock high or low). In GFLOW the differing hydraulic properties of the regional aquifer as well as the variation in average recharge are modeled by inhomogeneity domains.

3.1.3 Pumping from High Capacity Wells

While the 1994 records were used for calibration of the model, the IDNR 1998 high capacity well data set was used for capture zone delineation (see Appendix C). This record provides the locations and pumping rates for high-capacity wells located within and around the area of interest. Modeled pumping rates for the delineation analysis were based on the most recent water use records because they are more representative of what may occur in the future. Each registered well in the data base is associated with a category of use, such as irrigation or drinking water. Pumping data is reported to IDNR as monthly volumetric totals through the calendar year; the modeled pumping rate was the average annual rate from the IDNR records. Figure 10 shows a layout of the model in central Marion County showing the locations of all high-capacity wells. Appendix C lists the DNR 1998 water use data for the existing high capacity wells used in the capture zone analysis.

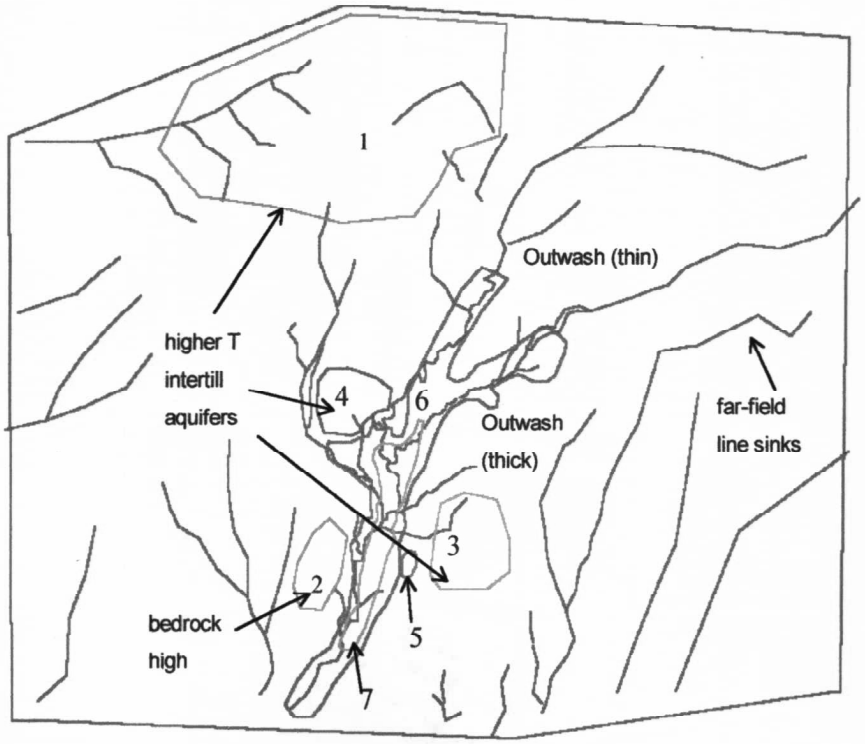


Figure 10. Layout of analytic elements in the regional groundwater flow model. Domain properties were varied in calibration analysis (see Table 3 for properties of the numbered aquifer domains).

3.2 Modeling Data

The data management tasks for the project can be divided into two main caegories: (1) selection and preparation of base maps used to create the delineation model; and (2) selection of data from well logs used to characterize the aquifer near the well fields, and 3) distribution of the pumping in the system based on the drilling records for the well field.

3.2.1 Surface Water Hydrography and Base Maps

Base maps of hydrography (locations of surface water features), roads and railroads were derived from the 1:100,000-scale digital line graph (DLG) maps provided by the United States Geological Survey (USGS). The maps were converted into the DXF format compatible with CAD software and mapping tools. For our purposes, the programs SURFER™ (Golden Software Inc.) and GFLOW (Haitjema Software, LLC) required the use of the base map information.

For use with the groundwater flow model GFLOW, the DLG base maps were imported into the GAEP preprocessor. GAEP (Kelson et al. 1995) facilitates the creation of analytic elements for the GFLOW model code using a digital map of hydrography with associated surface water levels. The surface water levels are used by GAEP to specify heads at "line sink" elements in GFLOW. In the case of this project, surface water levels were added to the hydrography map by digitizing them from USGS 1:24,000-scale topographic maps.

The road and railroad information was also imported into GAEP. Roads and railroads were then written into base maps compatible with the model code GFLOW as reference information in model plots. In addition, a GFLOW base map of hydrography (a map of the surface water features in the area) was prepared for use in developing the modeling input files.

3.2.2 Aquifer Domains

Information regarding the subsurface hydrology, aquifer material and aquifer geometry were extracted from the Indiana Department of Natural Resources (IDNR) water well log database and previous published work. These data were converted into a set of regional aquifer domains with different hydraulic properties and recharge rates (Figure 10). The water well log data were analyzed using the WHPA, Inc. Water Well Log Data Viewer program (WHPA, Inc., 1998). Well log information for all wells are included in Appendix D.

The variables listed in Table 1 from the well log database were used in aquifer characterization:

Table 1. Variables from IDNR database used in aquifer characterization.

Variable	Use
Well location	Map annotation, contour plot preparation
Static water level	Contour plots, model calibration
Well depth	Cross-sections
Depth to bedrock	Cross-sections
Lithology	Cross-sections, aquifer thickness distribution map

3.2.3 Recharge Rate

The estimates of "actual" base flow used in this project were obtained by processing stream flow data recorded by the USGS using a slope separation technique developed by Kim (1989). This technique evaluates the entire record for each selected gaging station. These estimates were compared to modeled base flow along the East and West Fork of the White River and major tributaries as well as on streams in adjacent watersheds. U.S. Geological Survey studies in the till plains of Indiana have consistently shown that annual recharge rates into the till are much lower (between 1.5 and 3.5 inches per year) than the 4 - 6 inches per year average base flow of the entire basin (Lapham 1981, Arihood and Lapham 1982, Arihood 1982). The till recharge estimates were later corroborated by isotope tracking of tritium in the pore water of the till (Daniels et al, 1991).

Since no detailed information about recharge rates are available in the upper Eagle Creek outwash aquifer or in the surrounding till, we have selected a range of recharge rates between 8 and 12 inches/year for the outwash and between 1.5 and 4 inches/year in the till (depending on the aquifer domain). This should be interpreted as being in the low-to-middle range of reported rates for the White River basin.

3.3 Regional Model Results

The purpose of delineating the capture zones of each well field is to determine the ***source areas*** of the water flowing to the wells. The water pumped from high capacity wells comes from at least one of the following sources:

- induced recharge from adjacent surface water feature
- vertical leakage from another aquifer
- local recharge
- regional flow

In most cases the water flowing from a pumping center near a stream is made up of a mix of these sources. The task of delineation is to determine how much of the water pumped in each well field comes from regional flow and how much is from regional flow into the area of interest. If there is a lot of water moving towards the well fields in the regional outwash and till aquifers, less will come from the streams and rivers. Conversely, if the stream is very close, and the hydraulic resistance between the stream and the aquifer is low, then the capture zones will shrink because the wells will

get water from the near-by source. The approach used to protect the resource depends on which of these situations exists at the particular well field.

3.3.1 Regional Piezometric Surface

The modeled piezometric surface for the regional domain used existing pumping rates for the public water supply wells in the area (see Figure 11). For the "calibrated model" the groundwater levels in the vicinity of the confluence of Fall Creek and the White River are between 680 and 675. At the Fall Creek well field the modeled water levels varied between 700 and 720 feet. While this simulation did not consider any local effects due to clay layers in the aquifer, the model does account for the effects of stream- aquifer resistance on regional flow. The model suggests that the entire reach of Fall Creek adjacent to the well fields is losing water to the aquifer.

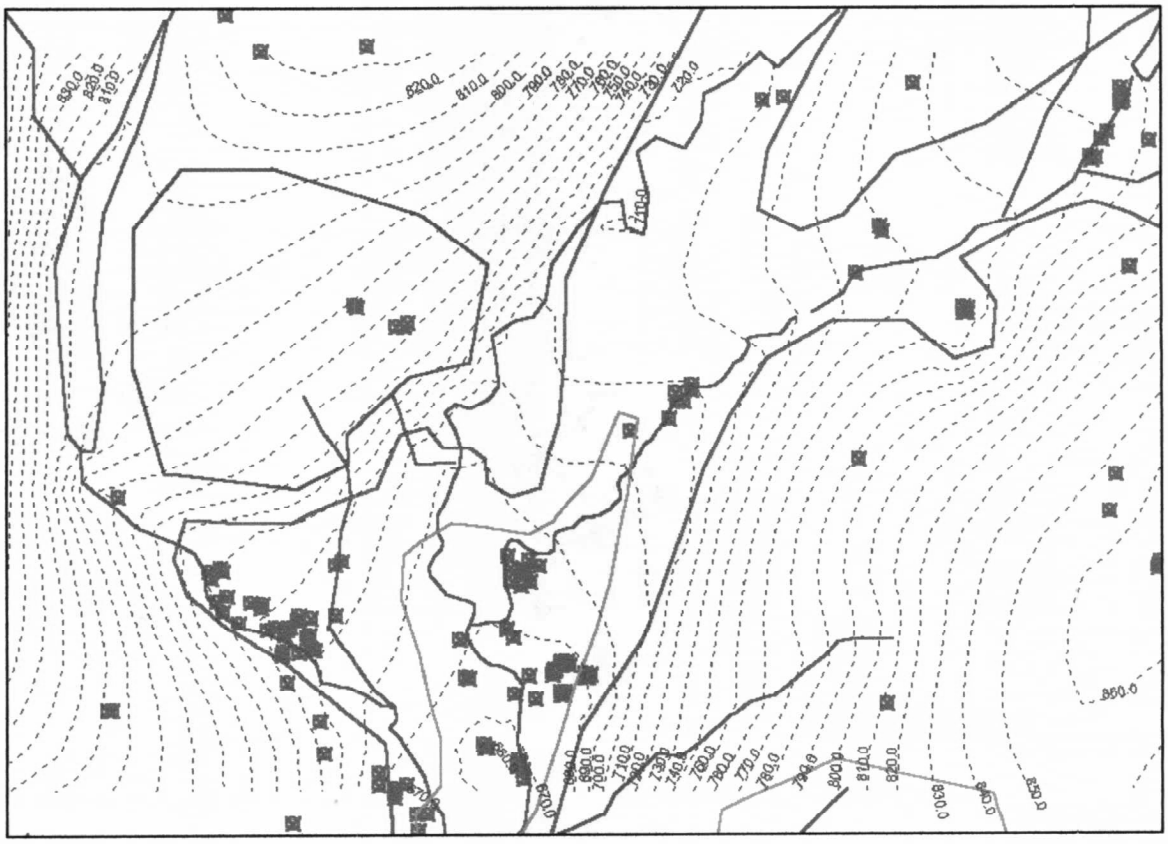


Figure 11. Modeled potentiometric surface in the area of interest for calibrated model.

3.3.2 Regional Calibration

Calibration was done by comparing the results of the groundwater simulation to field observations in order to understand the properties of the hydrologic system and to improve the model. In this case groundwater level measurements were compared to modeled water levels at the same locations. In addition, the model predicts groundwater discharge to streams in the model domain. Relative changes in modeled stream flow between two locations can be (roughly) compared to USGS stream flow records. Assuming the boundary conditions are well defined, there are three parameters that can alter the distribution of flow to the streams and/or the water levels in the aquifer: 1) recharge rate, 2) hydraulic properties of the aquifer, and 3) the hydraulic connection between the streams and the aquifer. The calibration approach used in this investigation was to first compare the modeled and observed flows to determine a reasonable distribution of recharge and to follow this with a sensitivity analysis of the piezometric surface.

Table 2. Aquifer properties used in regional model.

Variable	**value / source**
pumping from wells	1994 pumping rates / IDNR water use records
aquifer base	500 ft (Herring 1976, Gray 1982)
maximum aquifer thickness	200 ft (Herring 1976, IDNR water well data)
hydraulic conductivity and recharge rate of aquifer domains based on calibration	background: 10 ft/day / recharge rate = 3 in/yr domain #1: 10 ft/day / recharge rate = 3 in/yr domain #2: 2.5 ft/day / recharge rate = 1.5 in/yr domain #3: 10 ft/day / recharge rate = 3 in/yr domain #4: 10 ft/day / recharge rate = 3 in/yr domain #5: 5 ft/day / recharge rate = 3 in/yr domain #6: 100 ft/day / recharge rate = 12 in/yr domain #7: 175 ft/day / recharge rate = 12 in/yr
stream-aquifer resist.	< 1 day in near-field; 10-20 days in far-field

3.3.2.1. Observed Water Levels

No water level measurements were made during the course of this work. Instead, we used existing measurements and reported static water levels from the Department of Natural Resources (DNR) well log files. The variation in the static water level measurements at any location can be attributed to a combinations of several effects:

1) *seasonal effects*

The water well records include static water level measurements taken at various times through the year. Water level monitoring done by the USGS (indicates that the average annual variation in heads at any location can be between 5 and 15 feet. Smaller annual variation may be expected near surface water features, reflecting the annual change in river stage. Larger water level fluctuations can be expected further from the streams and closer to groundwater divides. Seasonal variation is superimposed on the other effects described below.

2) *longer term climatic variations*

Some years are simply drier or wetter than other years. In the early 1970's and the late 1980's there were fairly long drought spells. Water levels in the aquifers dropped in response to these long term decreases in recharge (Meyer and others 1975). Long term climate variation generally occurs over a period of several years. For the purposes of this report, it is not meant to include the effects of a changing climate regime due to global warming.

3) *different aquifers*

In many places within the area of interest a water well could be completed in an upper part of the unconsolidated section, in a deeper sand and gravel zone deeper in the section, or in the underlying limestone bedrock (Meyer et al 1976). The recorded water level could be a reflection of the differences between these locally separate system. Near the study area these locally separated aquifer systems are common. In the White River - Fall Creek outwash aquifer, static water levels taken from water well logs may differ at different depths further from the creek. In our regional modeling analysis we summed the flows in these different systems away from the creek and assumed that these separate aquifers are hydraulically connected at the perimeter of the outwash deposits.

4) *transient pumping*

Water levels in some of the wells are measured during periods of peak groundwater demand. If the water well is close to a high capacity well (and there are many high capacity industrial wells in the area) the measured water level may be affected by pumping rates in the near-by high capacity well.

Because GFLOW is simulating flow in a comprehensive aquifer we were able to use these water level measurements (with some interpretation) to calibrate the flow model. The most common approach to measure the quality of any groundwater model is to compare measured to simulated water levels in the aquifer. The quality of the simulation is then determined by considering the differences between observed and modeled water levels (see Figure 12). The standard method of calibration very often describes these differences statistically to objectively measure the quality of any solution (Anderson and Woessner 1992). The calibration was done in two parts: first there was an iterative comparison of measured to modeled water levels using GFLOW's graphical calibration utilities and then each observation was evaluated based on the individual water well records.

In most cases the water level measurements from the deeper aquifers were lower than the model predicted and the shallow well measurements were correspondingly higher than measured (see Figures 12 and 13). In these cases the differences between modeled and observed *confirmed* the comprehensive aquifer simulation. In each area there are observed water levels in the water wells that are reported to be both higher and lower than the modeled water levels. The observations also indicate that the year selected to represent the average annual pumping rate affects the calibration. For example, the 1994 pumping rate had a much better fit to the DNR static water level data than the pumping rates of any subsequent years. This suggests that the increases in pumping have lowered groundwater levels near the high capacity wells. In the final calibration run, the mean difference between the modeled water levels and the DNR water well observations (the most variable record) was 0.23 feet while the root mean squared difference was 22 feet. In addition to using and illustrating these standard methods, we evaluated the distribution of the difference between measured and modeled water levels and considered the specific reasons for these differences.

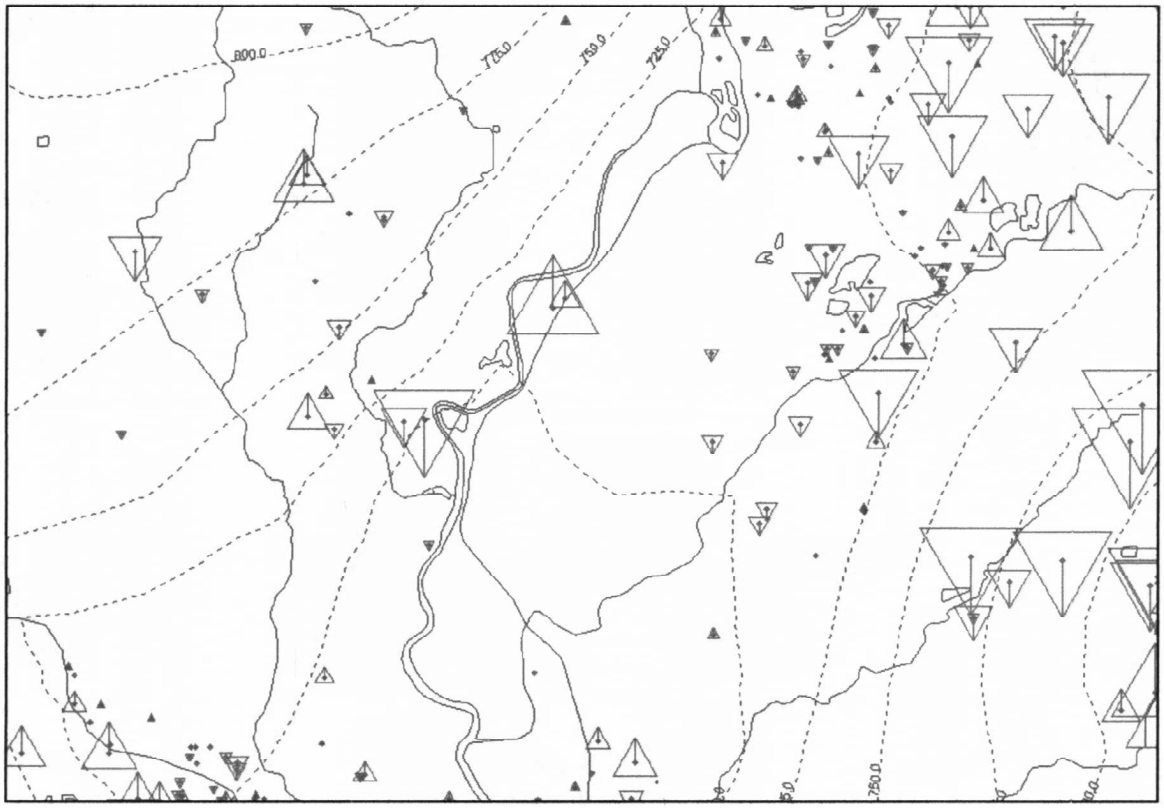


Figure 12. GFLOW plot of the difference between modeled water levels and observations recorded on DNR water well records near the confluence of the White River and Fall Creek.

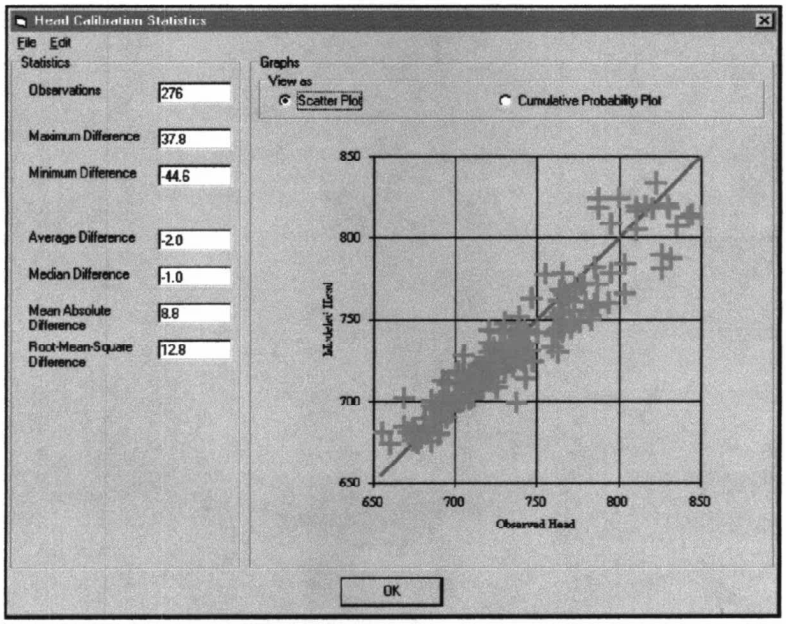


Figure 13. Example calibration of the regional model using the DNR data set. Calibration plot is reprinted from the GFLOW calibration window.

The calibration analysis was not used to simply "adjust" all of the model parameters. Instead the calibration provided a midpoint for the capture zone sensitivity analyses presented in the next section (Chapter 4). In order to represent the most recent conditions, the other non-public water supply high capacity wells within the model domain were pumped at their average pumping rate for 1996 during capture zone delineation.

3.3.2.2. Streamflow

Another piece of hydrologic information that was used to roughly check the groundwater flow model was flow in streams in the model region. GFLOW has the capability of modeling base flow in stream reaches and determining the extent of streams that are hydraulically connected to the aquifer at base flow conditions (perennial streams). Over the range of parameters used in the model, the extent of perennial stream reaches was less that that found on the USGS topographic maps. This indicated that, at least in the model domain, these smaller streams were connected to local systems rather than the regional aquifers.

3.4 Proposed Pumping Rates

RIVERSIDE/WHITE RIVER WELLFIELD

WELL #	Capacity (gpm)	YEAR	DEPTH	DIAMETER	S&G OR LS
RS 17	700		391	10	LS
RS 18	700		400	10	LS
RS 19	700		392	10	LS
RS 2	650		297	10	LS
RS 22	700		271	10	LS
RS 26	600		285	10	LS
RS 27	800		416	10	LS
RS 28	650		180	10	LS
RS 29	600		290	10	LS
RS 3	260		297	10	LS
RS 7	900		196	8	LS
RS 8	900		268	10	LS
RS 9	700		251	10	LS
RS A	1400	1995	97	16	S&G
WR 3	1400		70	38	S&G
WR 5	1400		99	46	S&G
WR 6	1400		71	26	S&G
WR 7	1400		77	26	S&G
WR 8	1400		77	26	S&G
WR 9	1400		80	30	S&G
Proposed Wells (Riverside)					
B	900	TBD	TBD	16	S&G
C	900	TBD	TBD	16	S&G
D	1000	TBD	TBD	16	S&G
E	1200	TBD	TBD	20	S&G
F	1200	TBD	TBD	20	S&G
G	1000	TBD	TBD	16	S&G
H	1400	TBD	TBD	24	S&G
I	1000	TBD	TBD	16	S&G
J	1400	TBD	TBD	24	S&G
K	800	TBD	TBD	16	S&G
L	900	TBD	TBD	16	S&G
M	1400	TBD	TBD	24	S&G

FALL CREEK WELLFIELD

WELL #	Capacity (gpm)	YEAR	DEPTH	DIAMETER	S&G OR LS
FC 2	1400		326	10	LS
FC 5	1000		360	10	LS
FC 7	300		280	10	LS
FC 8	600		305	10	LS
FC 11	1400		351	10	LS
FC 17	1000		82	16	S&G
FC 18	1400	1990	105	24	S&G
FC 19	700	1990	98	24	S&G
Proposed Wells (Fall Creek)					
A	700	TBD	TBD	16	S&G
B	700	TBD	TBD	16	S&G
C	1000	TBD	TBD	20	S&G
D	1000	TBD	TBD	20	S&G
E	1000	TBD	TBD	20	S&G
F	700	TBD	TBD	16	S&G
G	700	TBD	TBD	16	S&G
H	1000	TBD	TBD	20	S&G

Table 3. Proposed pumping rates used for the IWC wells modeled in the local capture zone delineation.

4. Local MODFLOW Modeling

The process of extracting a local MODFLOW grid for refining the model in the near-field is facilitated by special utilities in GFLOW. The transition from a single layer GFLOW model to a three-layer MODFLOW model proceeded in the following steps beginning with the calibrated regional GFLOW model.

1) Define and orient a finite difference grid for the well field in the regional model domain.

2) Extract the aquifer properties and boundary conditions from the regional model (translating the analytic elements into the equivalent finite difference representation). Perimeter grid cells were converted into constant head cells in each layer. The line sink elements were converted into head-specified cells with resistance. The wells were converted into constant discharge cells.

3) Redefine the single aquifer model as a three-layer aquifer (limestone, lower sand and gravel, upper sand and gravel). The total transmissivity was distributed between the three layers based on the data in Herring (1976).

4) Using the mapped clay layer boundaries (Figures 14 and 15), vertical resistance was varied based on the presence or absence of clay within the unconsolidated section.

When the mapped clay layers had been included in the model three different scenarios were identified: the clay was impermable, the clay is moderately permeable, the clay layers are not present in the system. The final capture zones are composites of each capture zone produced by each representation of the system.

The model flow model input files were generated by GFLOW to assure that the perimeter conditions along the edge of the finite difference grids were consistent with the regional model (Figures 16 and 17). Constant flux perimeter conditions were defined along the perimeter with the flux distributed in each layer based on the transmissivity of that layer (Strack 1989). The hydraulic properties of the aquifer also came from GFLOW distributed to keep the total transmissivity at each location the same as the regional model. Interior boundary conditions (streams) were modeled with head-resistance specified cells. Wells were positioned in either the deeper outwash layer or the bedrock..

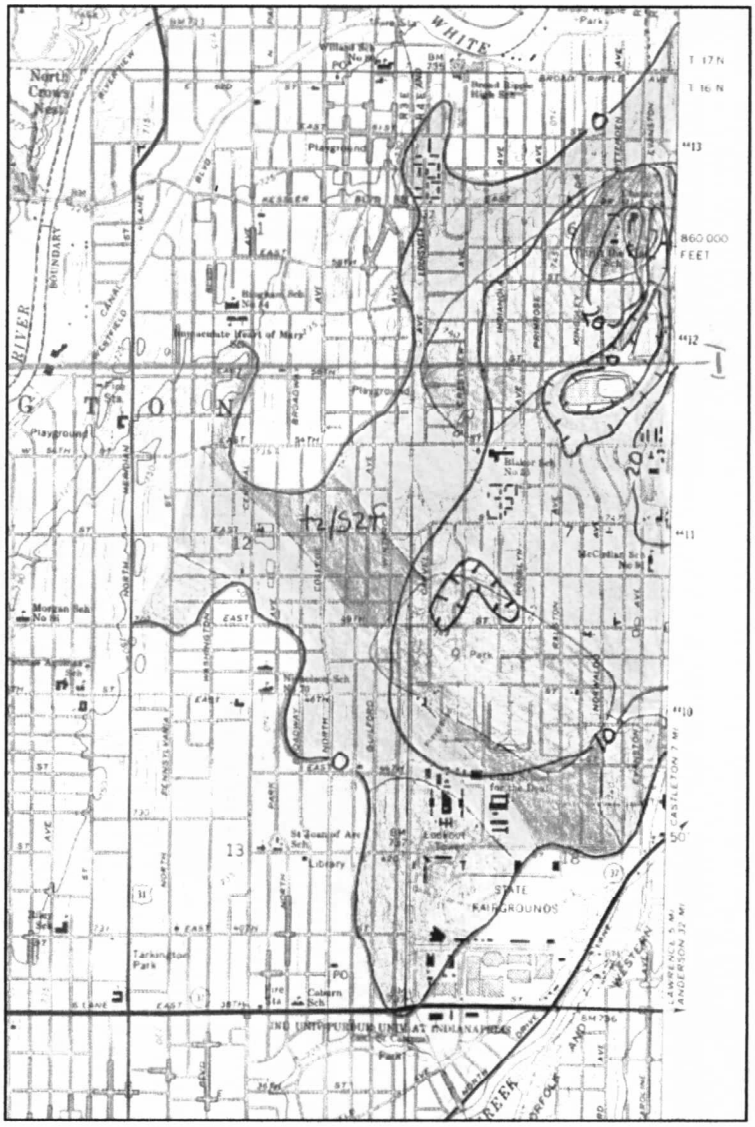


Figure 14. Mapped clay local layer near the proposed Fall Creek well field (from Brown and others 1995). Colors are used to indicate transmissivity of the aquifer below the clay. Contours are the estimated clay thickness.

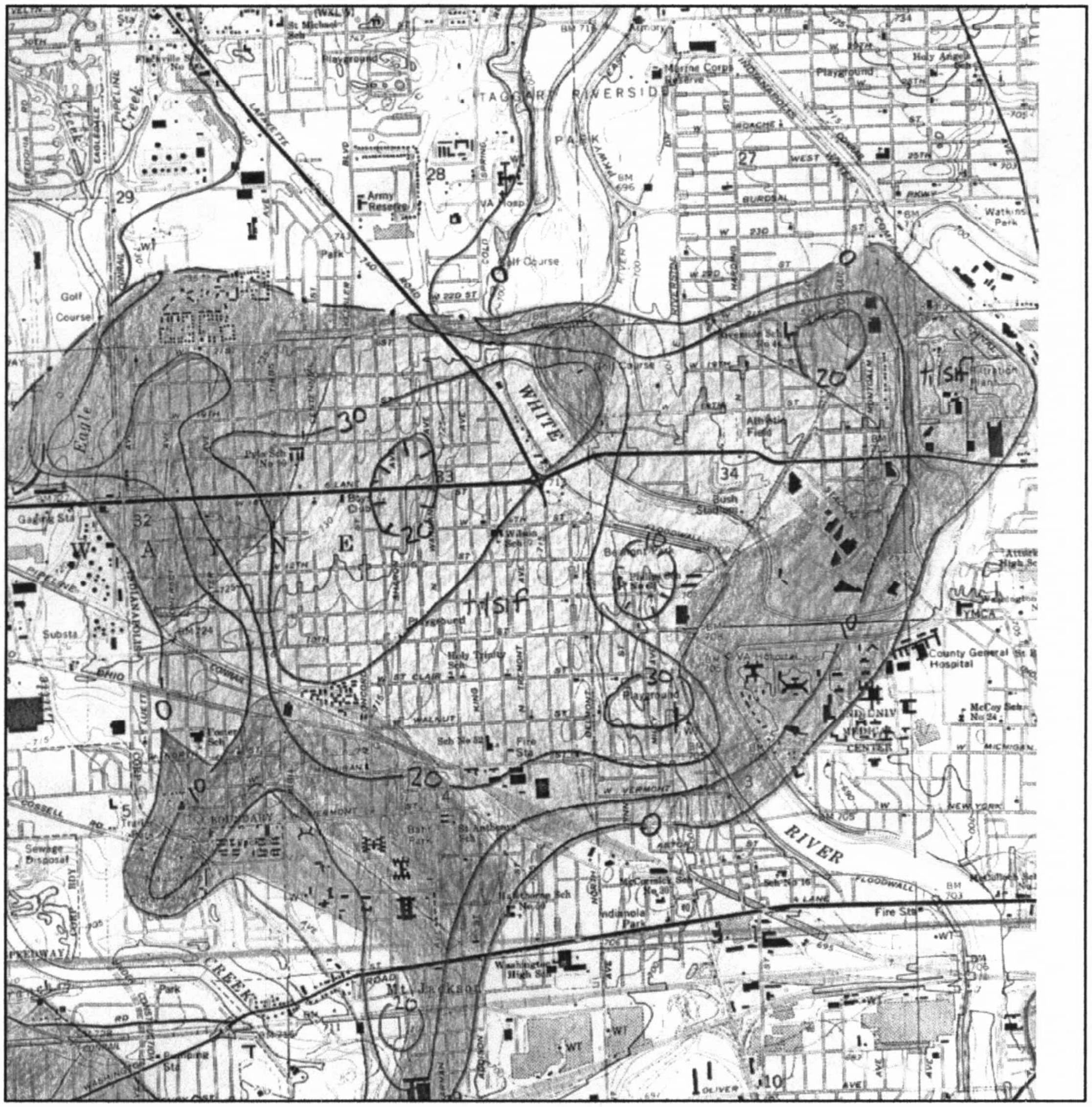


Figure 15. Mapped clay layer near the Riverside well field (from Brown and others 1995). Colors are used to indicate changes in transmissivity. Contours are for the estimated clay thickness.

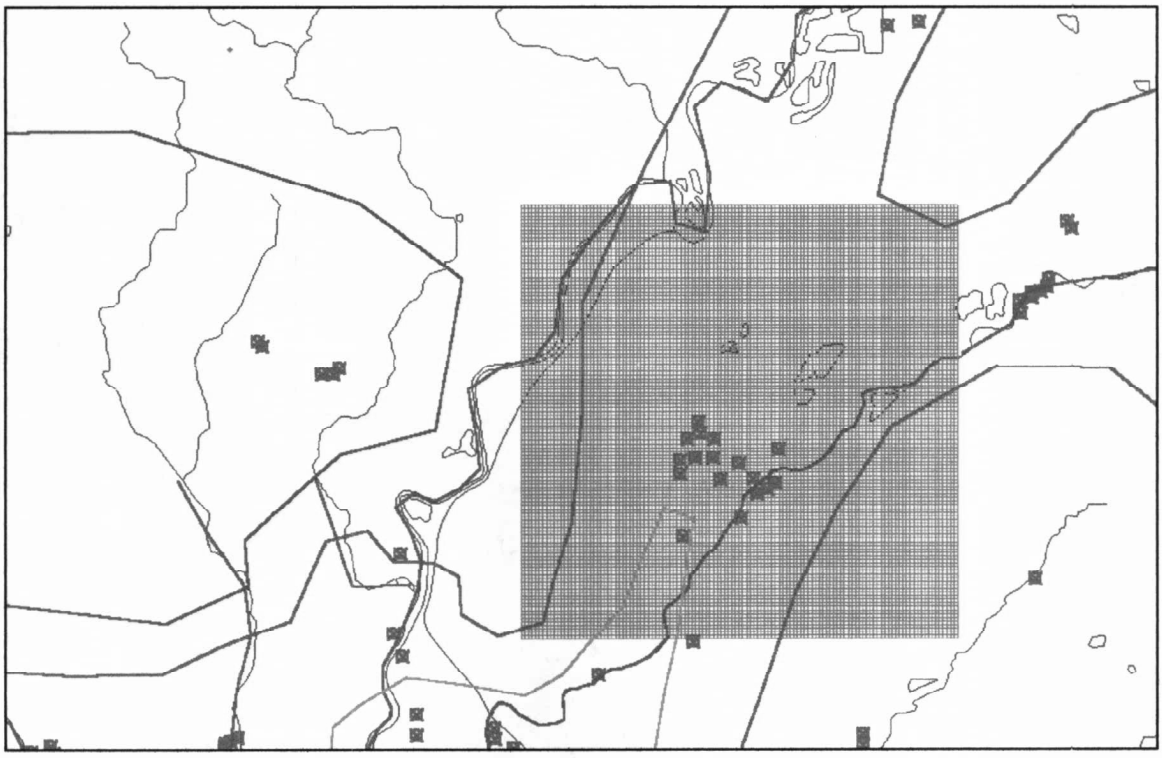


Figure 16. Location of MODFLOW grid for the Fall Creek well field. (square grid cells 200 X 200 ft, 120 cells on a side, UTM coordinates of the lower lefthand corner: UTME 570935 UTMN 4406749)

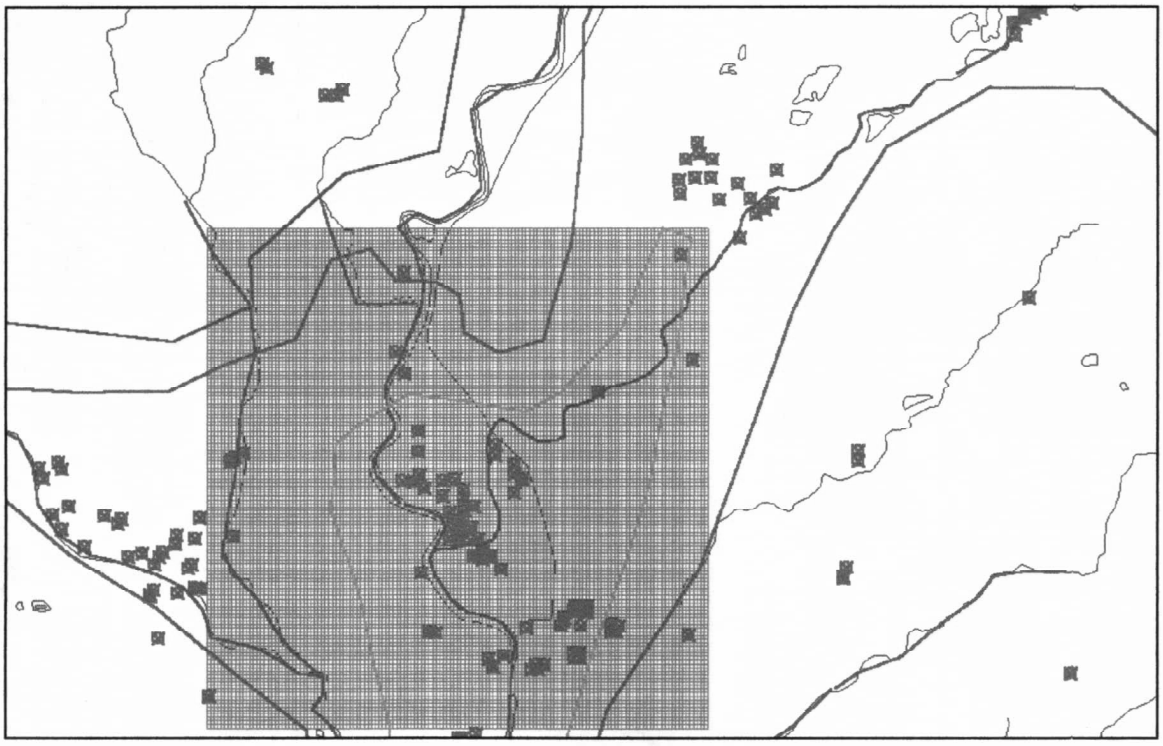


Figure 17. Location of MODFLOW grid for theRiverside/White River well field. (square grid cells 200 by 200 ft, 140 cells on a side, UTM coordinates of the lower lefthand corner: UTME 565572 UTMN 4400413)

5. Capture Zone Modeling

For the purpose of capture zone delineation, we applied a "hypothesis testing" approach. Capture zones for the Fall Creek and Riverside wells were computed for a variety of conceptualizations of the local clay layers mapped at each well field. There were five scenarios tested for each of the well fields:

1. no clay layer (GFLOW)
2. clay layer that has a low permeability (MODFLOW)
3. clay layer that has a low permeability (MODFLOW)
4. clay layer that has a low permeability (MODFLOW)
5. clay layer that is higher or lower in the section (MODFLOW)

After each model was run a capture zone was generated using the program MODPATH to back-trace particles released around each IWC well. hydraulic parameters and a "composite" capture zone was defined by superimposing the capture zones for all of the model runs. Hydraulic properties were varied over the ranges listed in Tables 4 and 5, with 10 total model runs.

Table 4. WHPA model run summary for Fall Creek well field (see Appendix A).

Run ID	elevation of clay [ft msl]	clay leakance
GFLOW	no clay layer	n/a
FC - 4	640	10^{-5}
FC - 5	640	10^{-3}
FC - 6	640	10^{-2}
FC - 7	625	10^{-5}

Table 5. WHPA model run summary for Riverside well field (see Appendix A).

Run ID	elevation of clay [ft msl]	clay leakance
GFLOW	no clay layer	n/a
RSFC - 4	630	10^{-5}
RSFC - 5	630	10^{-3}
RSFC - 6	630	10^{-2}
RSFC - 7	640	10^{-5}

4.1. Local Modeling and Capture Zone Delineation

The detailed modeling was conducted to delineate the wellhead protection area for each well field. For our purposes, the wellhead protection area is defined as the area within the five-year time of travel capture zone of the well field. Of course, groundwater flow is extremely variable from point to point and transient effects occur, so it is impossible to delineate the *exact* five-year time of travel capture zone. As a result, it is important to understand the "capture zone" for wellhead protection purposes to indicate a responsible estimate of the area which, *on average*, represents the five-year capture zone. The wellhead protection area is an area defined for regulatory purposes, based on the outcome of hydrological modeling work.

4.1.1 Approach

In each of the two well fields, there is substantial data collected during well field exploration and development and reduces the uncertainty in the hydraulic parameters of the aquifer, the recharge rate and the hydraulic resistance of the streams in the region. As a result, it is appropriate to delineate the capture zone based on several variations around a calibrated "best fit" model. In this case, we defined a *composite capture zone* from a set of three MODFLOW runs and two GFLOW runs. Once all capture zones were complete, the wellhead protection area was delineated by drawing a line which enclosed all of the capture zones for all runs.

4.1.1.1 Delineating a capture zone for a single run

The wellfield is represented by the set of constant discharge cells pumping at the design capacity of the individual wells in either their current or (in the case of proposed wells) their proposed location. Once the model solution is obtained, a backward streamline tracing procedure is used to compute the paths of hypothetical particles from the well. The particles are release in the deepest part of the aquifer and followed for 5 years, backwards in time, and their paths are plotted. Ten pathlines were traced from the well and a line was then drawn around the area swept out by the pathline tracing. The perimeter line is the delineated capture zone.

4.1.1.2 Delineating the composite capture zones

In the analysis of uncertainty a variety of hydraulic properties were modeled with a parameter sensitivity analysis. The local conceptual model includes the effect of vertical separation of the hydrostratigraphic units where there are mapped clay layers in the outwash. The hydraulic properties used to describe the unconsolidated sand and gravel were determined from previous reports and IDNR water well log lithology records.

Figure 14 shows a *composite* capture zone for all of the model runs. Each figure in Appendix A illustrates the capture zones from the individual runs as a set of pathlines that extend away from each well. The composite capture zone encloses all of the capture zones for all runs. Note that this analysis does not suggest that any portion of the composite capture zone is more likely to be within 5 years of the well. The procedure only ensures that uncertainties in the capture zone introduced by data uncertainty are accounted for in the regulatory process. If a more "accurate" capture zone is desired, more field data will be required. The composite capture zones for the high-porosity runs are contained entirely within the composite capture zone. In effect, the perimeter of the wellhead protection area is defined by the more conservative scenarios. Given the uncertainty in the analysis this composite capture zones shown in Figures 18 and 19 are appropriate.

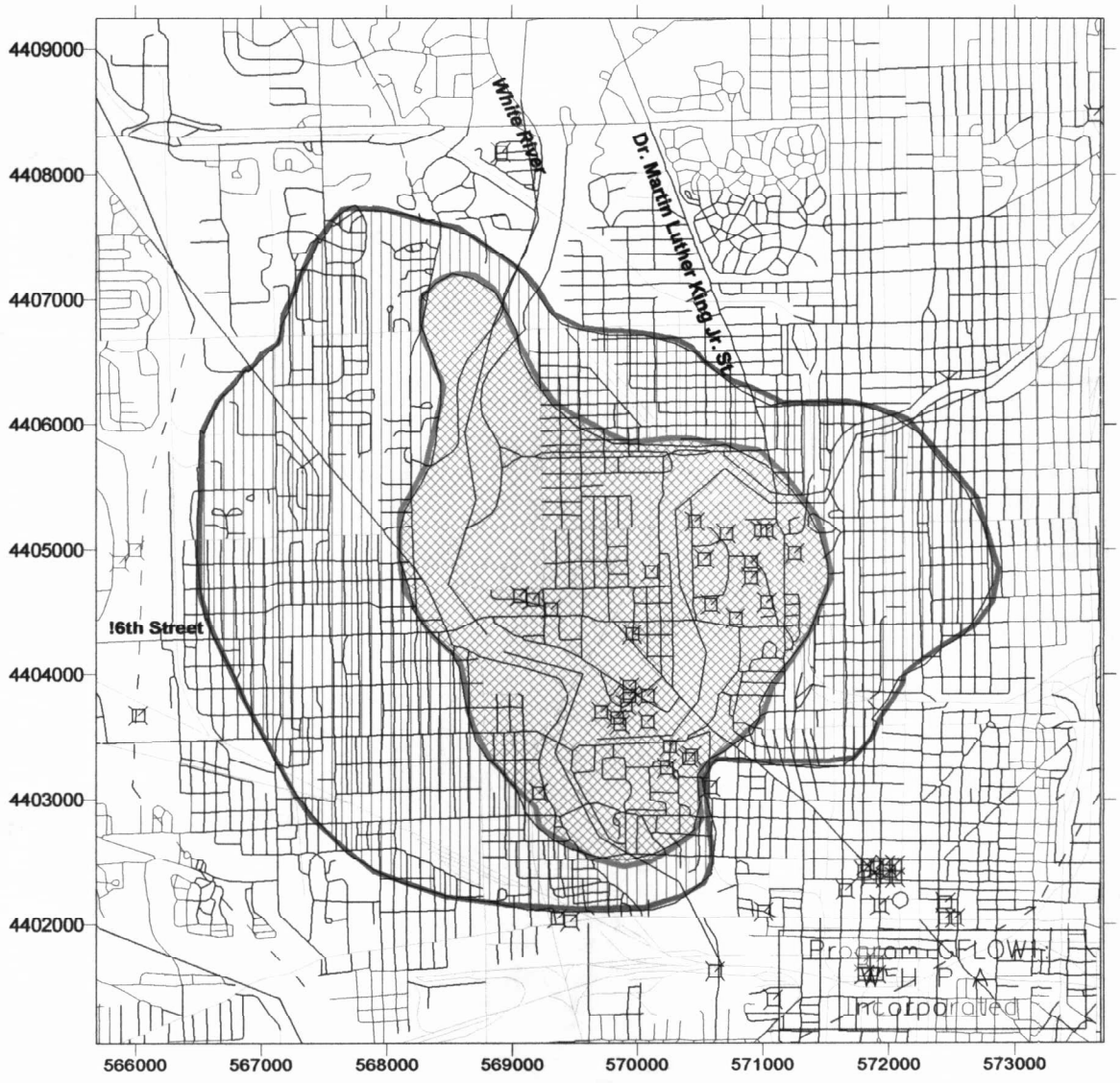


Figure 18. One (red) and five-year (purple) TOT capture zones for the Riverside/White River well field.

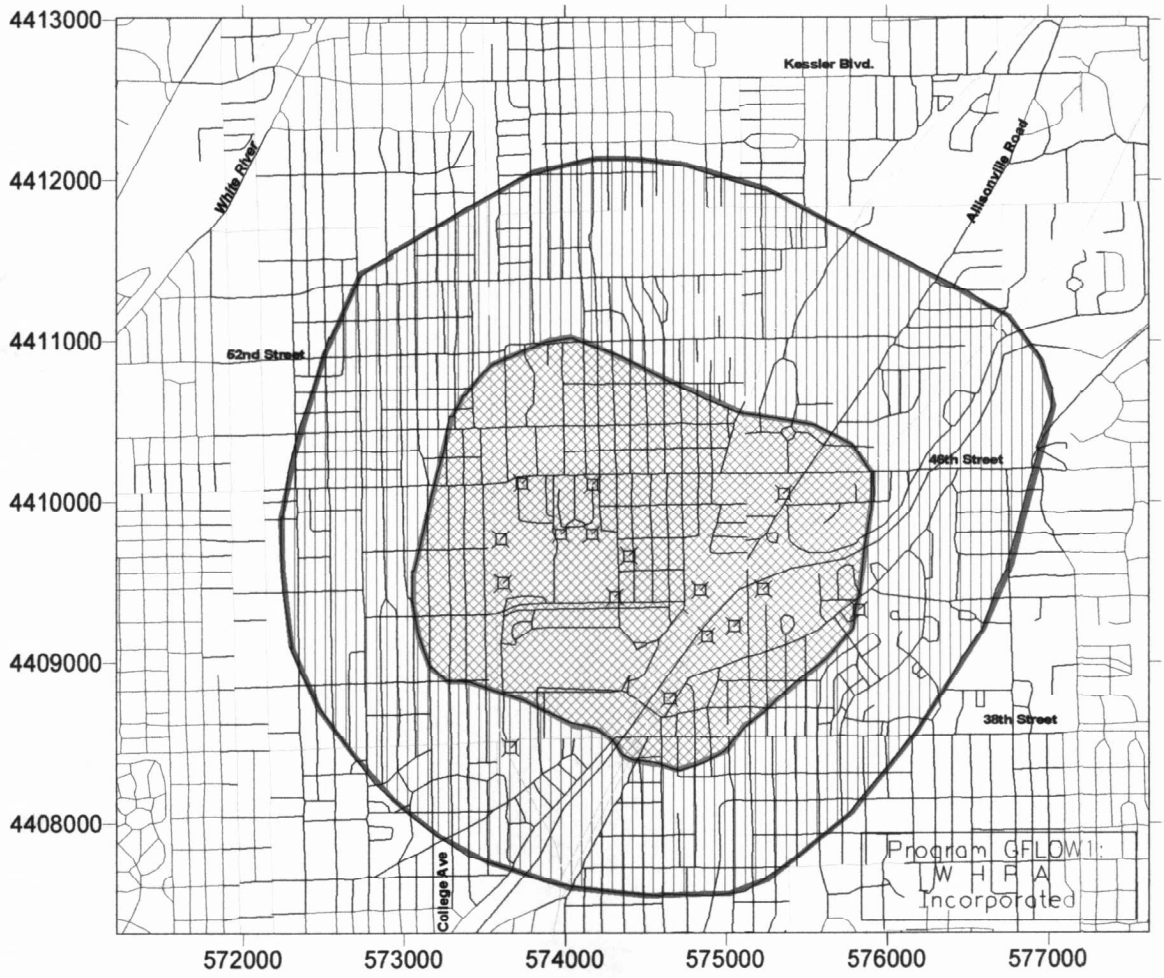


Figure 19. One (red) and five-year (purple) TOT capture zones for the Fall Creek well field.

5. Bibliography

Anderson, M.P. and W.W. Woessner, 1992. *Applied Groundwater Modeling*, Academic Press, Inc., San Diego, California. 381 pp.

Arihood, L.D. and W.W. Lapham, 1982. Ground-Water Resources of the White River Basin, Delaware County, Indiana. U.S. Geological Survey Water Resources Investigation 82-47. 69 pp.

Arihood, L.D., 1982. Ground-Water Resources of the White River Basin, Hamilton and Tipton Counties, Indiana. U.S. Geological Survey Water Resources Investigation 82-48. 69 pp.

Bailey, Z.C. and T.E. Imbrigiotta, 1982. Ground-Water Resources of the Glacial Outwash along the White River, Johnson and Morgan Counties, Indiana. U.S. Geological Survey Water Resources Investigation 82-4016. 87 pp.

Bailey, Z.C., and T.E. Imbrigiotta, 1982. Ground-Water Resources of the Glacial Outwash along the White River, Johnson and Morgan Counties, Indiana. USGS WRI 82-4016, 87 p.

Barlow, P.M., 1994. Two- and Three-Dimensional Pathline Analysis of Contributing Areas to Public Supply Wells of Cape Cod, Massachusetts. Ground Water. v. 32, no. 3. pp. 399-410.

Bobay, K.E., 1988. Ground-Water Flow and Quality Beneath Sewage-Sludge Lagoons, and a Comparison with the Ground-Water Quality Beneath a Sludge-Amended Landfill, Marion County, Indiana. U.S. Geological Survey Water-Resources Investigations Report 88-4175. 74 pp.

Brown, S., V. Ferguson and A. Fleming, 1995. Hydrogeologic Framework of Marion County, Indiana (Unpublished Maps). Indiana Geological Survey, Environmental Geology Section, Open File Report 93-5.

Daniels, D.P., S.J. Fritz and D.I. Leap, 1991. Estimating Recharge Rates through Unsaturated Glacial Till by Tritium Tracing. Ground Water. v. 29, no. 1. pp. 22-34.

Drever, J.I., 1988. *The Geochemistry of Natural Waters* (Second Edition). Prentice Hall, Englewood Cliffs, New Jersey. 437 pp.

Duwelius, R.F. and T.K. Greeman, 1989. Geohydrology, Simulation of Ground-Water Flow, and Ground-Water Quality at Two Landfills, Marion County, Indiana. U.S. Geological Survey Water-Resources Investigation Report 89-4100. 135 pp.

Duwelius, R.F., 1987. Water-Resources Programs and Hydrologic Needs, Marion County, Indiana. U.S. Geological Survey Open File Report 90-0159. 24 pp.

EPA, 1994. Ground Water and Wellhead Protection Handbook, Office of Research and Development, Office of Water, USEPA, Wash. D.C. EPA/625/R-94/001, pp. 269.

Eagon and Associates. 1988. Ground water evaluation Indiana Lake Christian retreat site, Lawrence, Indiana.

Eagon and Associates. 1992. Pumping Test Analysis and Evaluation of the Proposed Sugar Creek Well Field, Aquifer Testing Report.

Fenlon, J., K. Bobay, and Others, 1994. Hydrogeologic Atlas of Aquifers in Indiana. USGS WRI 92-4142.

Fenelon, J.M., and R.C. Moore, 1996. Occurrence of pesticides in groundwater in the White River basin, Indiana, 1994-1995. USGS Fact Sheet 084-96.

Ferguson, V., 1995. Hydrogeologic cross sections through Marion County public water supply aquifers. Unpublished maps using framework developed by Brown and others (1995).

Fowler, K.K. and J. T. Wilson, 1996. Low-flow characteristics of Indiana streams. USGS WRI 96-4128.

Gillies, D.C., 1976. Availability of Ground Water near Carmel, Hamilton County, Indiana. U.S. Geological Survey Water Resources Investigation 76-46. 27 pp.

Gray, H.H., N.K. Bleuer, J.R. Hill and J.A. Lineback, 1979. Geologic Map of the 1° x 2° Indianapolis Quadrangle, Indiana and Illinois, Showing Bedrock and Unconsolidated Deposits. Indiana Geological Survey Regional Geologic Map No. 1.

Gray, H.H., 1982, Map of Indiana showing topography of the bedrock surface: Bloomington, Indiana, Indiana Geological Survey Miscellaneous Map no. 36, scale 1:500,000.

Gray, H.H., 1983, Map of Indiana showing thickness of unconsolidated deposits: Bloomington, Indiana, Indiana Geological Survey Miscellaneous Map no. 38, scale 1:500,000.

Gross, M.K., 1990. Well Field Evaluation Based on the Results of Supply Well No. 9, Lawrence, Indiana. Eagon & Assoc., Inc. Report for the City of Lawrence. 24 pp.

Haitjema, H., and J. Wittman, 1992. Wellhead Protection of the South Well Fields near Columbus, Indiana, Haitjema Consulting Report, 83 p.

Haitjema, H., and J. Wittman, V. Kelson, N. Bauch, 1994. WhAEM: Program Documentation for the Wellhead Analytic Element Model, UPEPA/600/R-94/210, 120 p.

Haitjema, H., V. Kelson, and J. Wittman, 1996. Capture Zone Delineation for the Municipal Well Fields, Columbus, Indiana, Haitjema Consulting Report, 68 p.

Haitjema, H.M., 1992. Modeling Regional Ground-Water Flow in Fulton County, Indiana: Using the Analytic Element Method. Ground Water. v. 30, no. 5, pp. 660-66.

Haitjema, H.M., 1995. *Analytic Element Modeling of Groundwater Flow.* Academic Press. SanDiego, California. 394 pp.

Hammen, J.L. and P.J. Gerla, 1994. A Geographic Information Systems Approach to Wellhead Protection. Water Resources Bulletin. v. 30, no. 5, pp. 833-39.

Hartke, E.J. and H.H. Gray, 1989. Geology for Environmental Planning in Marion County, Indiana. State of Indiana Department of Natural Resources, Geological Survey Special Report 47. 38 pp.

Hartke, E.J., C.H. Ault, G.S. Austin, L.E. Becker, N.K. Bleuer, W.C. Herring and M.C. Moore, 1980. Geology for Environmental Planning in Marion County, Indiana. State of Indiana Department of Natural Resources, Geological Survey Special Report 19. 53 pp.

Heath, R.C., 1983. Basic Ground-Water Hydrology. U.S. Geological Survey Water Supply Paper 2220. 84 pp.

Heckard, J.M., 1966. Water Resources of Morgan County with emphasis on ground-water availability, Indiana Department of Natural Resources, Div. Of Water.

Herring, W.C., 1974. Water Resources of Marion County with Emphasis on Ground-Water Availability. State of Indiana Department of Natural Resources, Division of Water.

Herring, W.C., 1976. Technical Atlas of the Ground-Water Resources of Marion County, Indiana. State of Indiana Department of Natural Resources, Division of Water. 53 pp.

Hunt, R., M.P. Anderson, and V.A. Kelson, 1998. Improving the use of a complex finite difference groundwater flow model through the use of an analytic element screening model. Groundwater, 36, 36(6):1011-1018.

Indiana Department of Environmental Management, Office of Water Management, Drinking Water Branch, 1994. State of Indiana Draft Wellhead Protection Program. 61 pp.

Kelson, V. and H.M. Haitjema. 1994. GFLOW Analytic Element Groundwater Flow Modeling User's Manual, Haitjema Consulting.

Ketcham, M.L., and C.T. Jafvert, "Urban Targeting of Nonpoint Source Pollution in the Grand Calumet River Watershed," NPS-NEWS Notes, U.S. EPA, Office of Water, April 1993.

Lackaff, B.B., B.J. Hunt and I.E. Von Essen, 1993. The Development and Implementation of a GIS-Based Contaminant Source Inventory over the Spokane Aquifer, Spokane County, Washington. Water Resources Bulletin. v. 29, no. 6, pp. 949-55.

Lapham, W.W., 1981. Ground-Water Resources of the White River Basin, Madison County, Indiana. U.S. Geological Survey Water Resources Investigation 81-35. 111 pp.

Layne-Western, 1981. Aquifer Test Analysis, Indiana Cities Water Corporation Franklin Well Field (Sugar Creek), Well Field Testing Report.

Leal, N.E., 1994. Wellhead Protection Area Delineation of the Geist Wellfield for the Indianapolis Water Company, Ortman Drilling, Inc., Indianapolis, Indiana. 37 pp.

M.L. Taylor and Associates, Inc., 1990. Analysis and Evaluation of the Well Field Development Program, Fall Creek West Well Field, Indianapolis, Indiana.

Martin, J.D., and Craig, R.A., 1990, Effects of storm runoff on water quality in the White River and Fall Creek, Indianapolis, Indiana, June through October 1986 and 1987: U.S. Geological Survey Water-Resources Investigations Report 89-4185, 114 p.

Meyer, W., J.P. Reussow, and D.C. Gillies, 1975. Availability of Groundwater in Marion County, Indiana. USGS OFR 75-312. 87 pp.

Meyer, W., 1979. Geohydrologic Setting of and Seepage from a Water-Supply Canal, Indianapolis, Marion County, Indiana. U.S. Geol. Survey Water Resources Investigations 79-115. 16 pp.

Moore, R., 1993. Summary report of progress made in modeling groundwater flow in the Sugar Creek Basin, Indiana for the U.S. Geological Survey. Unpublished report by IU- SPEA Groundwater Modeling Laboratory for the White River NAQWA project. 31 p.

Moore, R.C., and J.M. Fenelon, 1996. Occurrence of nitrate in groundwater in the White River basin, Indiana, 1994-1995. USGS Fact Sheet 110-96.

Mundell, J.A., J. Berndt, and J. Wittman, 1995. Groundwater Hydrology Assessment for the Central Indianapolis Waterfront Project. ATEC Associates, Inc. Project #11-07-94-00004.

Page, G.W. (Ed.), 1987. *Planning for Groundwater Protection.* Academic Press, Orlando, Florida. 387 pp.

Patrick, R., 1987. *Groundwater Contamination in the United States.* University of Pennsylvania Press, Philadelphia, Pennsylvania. 513 pp.

Saul, M.T. and B.A. Robinson, 1989. Streambed Permeability and Seepage in White River, Marion County, Indiana. State of Indiana Department of Natural Resources, Division of Water Special Project 4. 49 pp.

Smith, B.S., 1983. Availability of Groundwater from the Outwash Aquifer, Marion County, Indiana. USGS WRI 83-4144. 70 pp.

Strack, O.D.L., 1989. *Groundwater Mechanics.* Prentice Hall, Englewood Cliffs, New Jersey. 732 pp.

Uhl, J.E., 1966. Water Resources of Johnson County with emphasis on ground-water availability, Indiana Department of Natural Resources, Div. Of Water.

USGS, 1979. Map Showing Total Thickness of Quaternary Age and Cumulative Percent of the Thickness that is Sand and Gravel, Upper White River basin, East-Central Indiana Water Supply Paper 1999-C, Plate 1.

Wang, H.F. and M.P. Anderson, 1982. *Introduction to Groundwater Modeling - Finite Difference and Finite Element Methods*. W.H. Freeman and Company, San Francisco, California. 237 pp.

Ward D.S., D.R. Buss, J.W. Mercer, and S.S. Hughes, 1987. Evaluation of a corrective action at the Chem-Dyne hazardous waste site using a telescopic mesh refinement modeling approach. Water Resources Res. 23:603-617.

Wittman, J. and M. Hoover, 1997. Wellhead Protection Area Delineation Guide, IDEM-ODW Wellhead Protection Technical Support Publication,

Wittman, J., 1997. Wellhead Protection in Indiana: A guide for small and medium sized systems, IUPUI - Center for Urban Policy and the Environment Pub#97-E03, 25 p.

Wittman, J., and H. Haitjema. 1995. Delineation of Wellhead Protection Zones in Marion County - A Report to the Marion County Well Field Protection Technical Committee. IUPUI - Center for Urban Policy and the Environment Pub#9-E14.

Wittman, J., 1998. Update: Delineation of Wellhead Protection Zones in Marion County - A Report to the Marion County Well Field Protection Technical Committee. IUPUI - Center for Urban Policy and the Environment, Misc. Pub.

Wittman, J., H. Haitjema, and L. Studebaker, 1997. Recycling input data during analytic element modeling near Indianapolis, Indiana. Journal of the American Water Resources Association. V33:1, pp 47-54.

Zeizel, A.J. W.C. Walton, T.A. Prickett, and R.T. Sasman, 1962. Groundwater Resources of DuPage County Illinois, Illinois State Water Survey Report, Coop. Ground-Water Report No.2.

Uhl, J.E., 1966. Water Resources of Johnson County with emphasis on ground-water availability, Indiana Department of Natural Resources, Div. Of Water.

USGS, 1979. Map Showing Total Thickness of Quaternary Age and Cumulative Percent of the Thickness that is Sand and Gravel, Upper White River basin, East-Central Indiana Water Supply Paper 1999-C, Plate 1.

Wang, H.F. and M.P. Anderson, 1982. *Introduction to Groundwater Modeling - Finite Difference and Finite Element Methods*. W.H. Freeman and Company, San Francisco, California. 237 pp.

Ward D.S., D.R. Buss, J.W. Mercer, and S.S. Hughes, 1987. Evaluation of a corrective action at the Chem-Dyne hazardous waste site using a telescopic mesh refinement modeling approach. Water Resources Res. 23:603-617.

Wittman, J. and M. Hoover, 1997. Wellhead Protection Area Delineation Guide, IDEM-ODW Wellhead Protection Technical Support Publication,

Wittman, J., 1997. Wellhead Protection in Indiana: A guide for small and medium sized systems, IUPUI - Center for Urban Policy and the Environment Pub#97-E03, 25 p.

Wittman, J., and H. Haitjema. 1995. Delineation of Wellhead Protection Zones in Marion County - A Report to the Marion County Well Field Protection Technical Committee. IUPUI - Center for Urban Policy and the Environment Pub#9-E14.

Wittman, J., 1998. Update: Delineation of Wellhead Protection Zones in Marion County - A Report to the Marion County Well Field Protection Technical Committee. IUPUI - Center for Urban Policy and the Environment, Misc. Pub.

Wittman, J., H. Haitjema, and L. Studebaker, 1997. Recycling input data during analytic element modeling near Indianapolis, Indiana. Journal of the American Water Resources Association. V33:1, pp 47-54.

Zeizel, A.J. W.C. Walton, T.A. Prickett, and R.T. Sasman, 1962. Groundwater Resources of DuPage County Illinois, Illinois State Water Survey Report, Coop. Ground-Water Report No.2.

Appendix A

IWC-Riverside & Fall Creek
WHPA Delineation Report

Capture Zone Sensitivity Analysis

Table A-1 MODFLOW model run summary for Fall Creek well field.

Run ID	elevation of clay [ft msl]	clay leakance
GFLOW	no clay layer	n/a
FC - 4	640	10^{-5}
FC - 5	640	10^{-3}
FC - 6	640	10^{-2}
FC - 7	625	10^{-5}

Table A-2 MODFLOW model run summary for Riverside well field.

Run ID	elevation of clay [ft msl]	clay leakance
GFLOW	no clay layer	n/a
RSFC - 4	630	10^{-5}
RSFC - 5	630	10^{-3}
RSFC - 6	630	10^{-2}
RSFC - 7	640	10^{-5}

The following figures are example output of the model runs used to delineate the composite capture zones for the Riverside/White River well field and the Fall Creek well field. The first set of four figures shows the aquifer properties and boundary conditions that were defined in two local MODFLOW models. The data used in the local modeling (perimeter fluxes, recharge rates, hydraulic conductivity, etc.) were all extracted from the regional GFLOW model. The model runs varied in the resistance of the clay layer that separated the sand and gravel into and upper and a lower zone. (For a complete explanation of the regional-local modeling technique, see Hunt et al. 1999.) The second set of figures shows the examples of the path-line analysis that was used to delineate the capture zones.

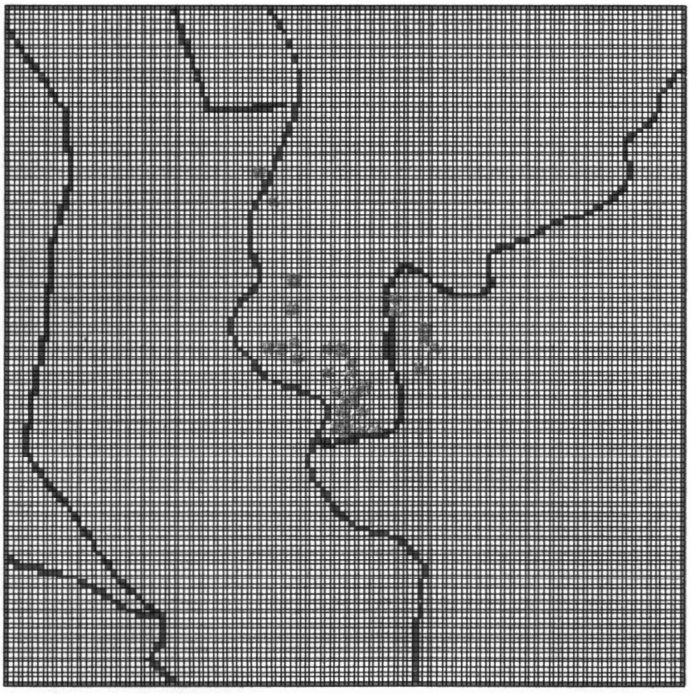


Figure 1. Perimeter and boundary conditions applied to Riverside MODFLOW model. Red cells are flux-specified, blue are head-specified, green are head/leakance-specified and particles are indicated around wells.

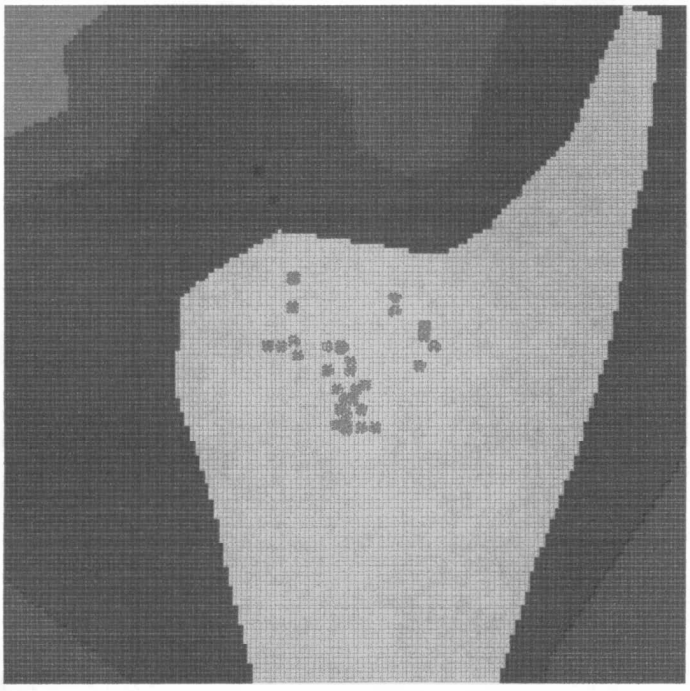


Figure 2. Distribution of hydraulic conductivity in Riverside MODFLOW model. The same domain shapes exist in each of the three model layers (upper and lower unconsolidated, and bedrock).

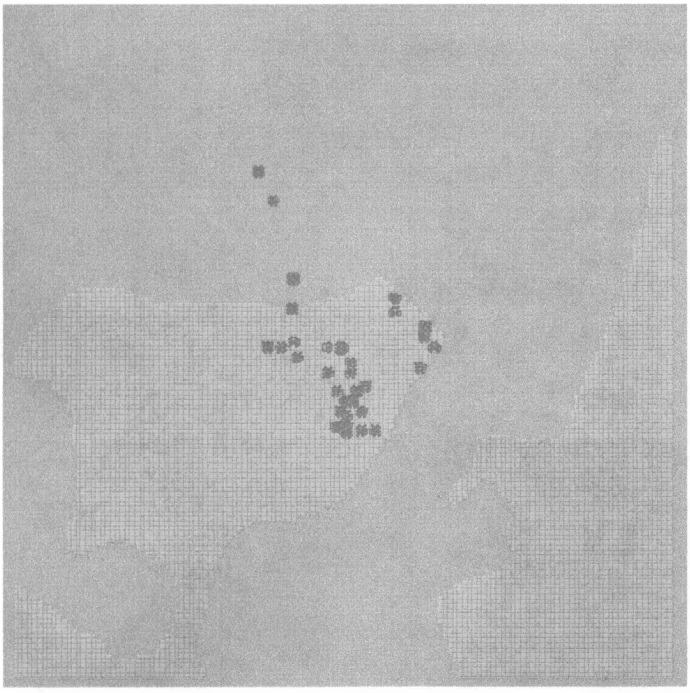


Figure 3. Distribution of leakance in upper aquifer (Layer 1) of Riverside MODFLOW model. The leakance was varied in the sensitivity analysis from 10^{-5} to 10^{-3} to 10^{-2}.

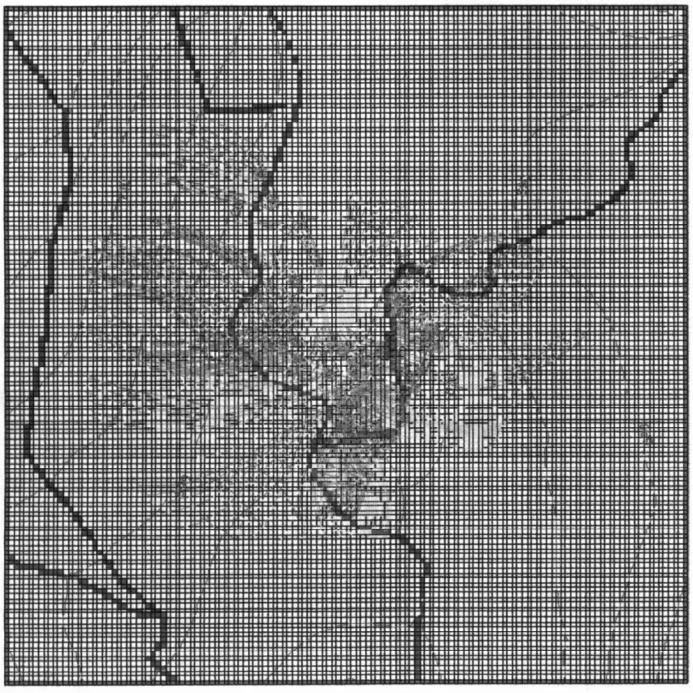


Figure 4. Example 5-year TOT capture zones for Riverside MODFLOW model.

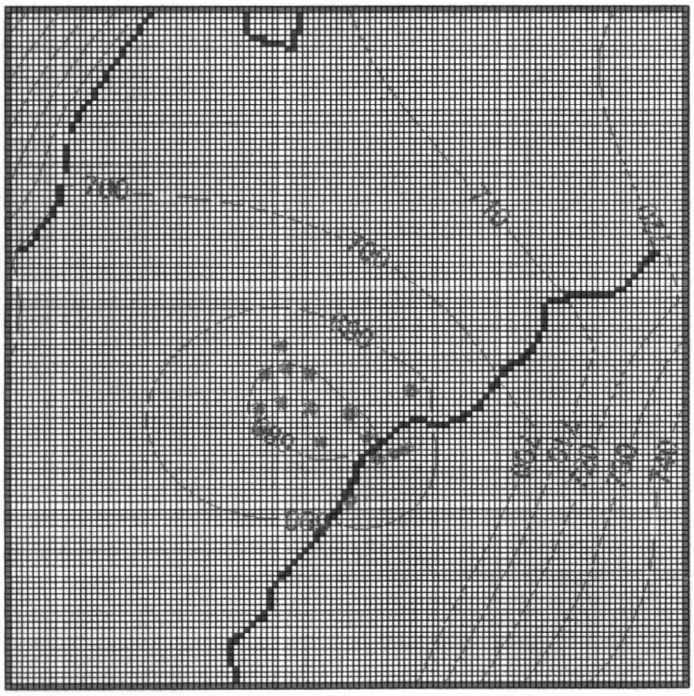


Figure 5. Perimeter and boundary conditions applied to Fall Creek MODFLOW model. Red cells are flux-specified, blue are head-specified, green are head/leakance-specified and particles are indicated around wells.

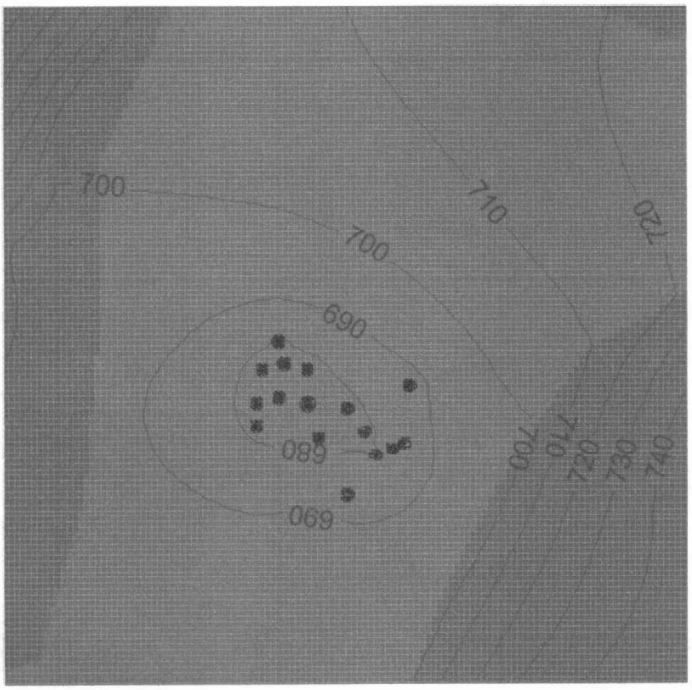


Figure 6. Distribution of hydraulic conductivity in Fall Creek MODFLOW model. The same domain shapes exist in each of the three model layers (upper and lower unconsolidated, and bedrock).

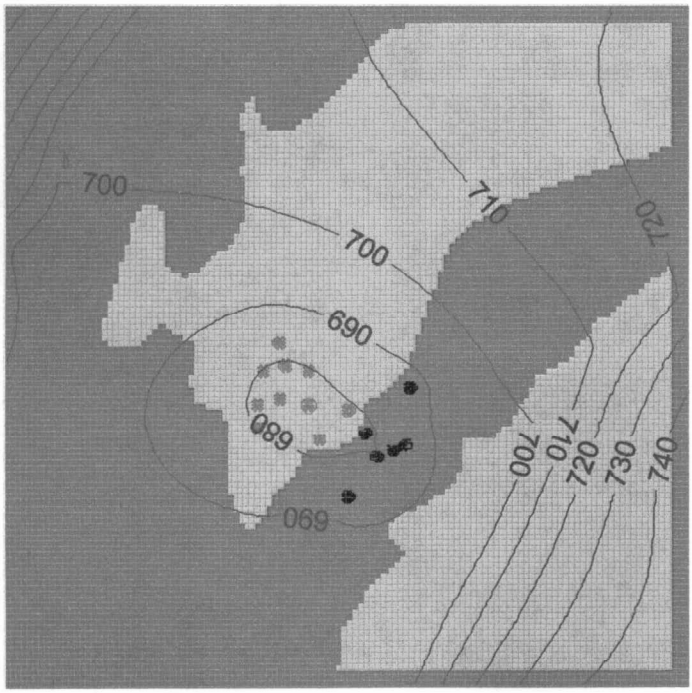


Figure 7. Distribution of leakance in upper aquifer (Layer 1) of Fall Creek MODFLOW model. The leakance was varied in the sensitivity analysis from 10^{-5} to 10^{-3} to 10^{-2}.

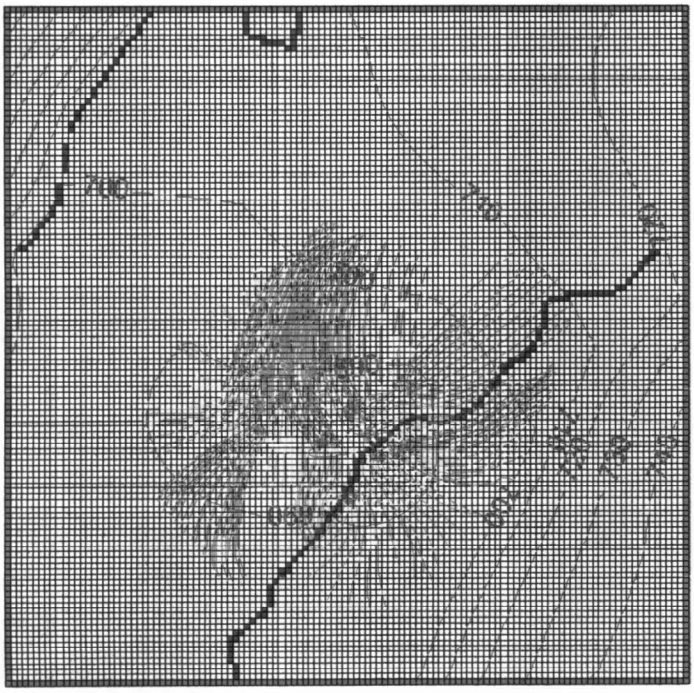


Figure 8. Example 5-year TOT capture zones for Fall Creek MODFLOW model.

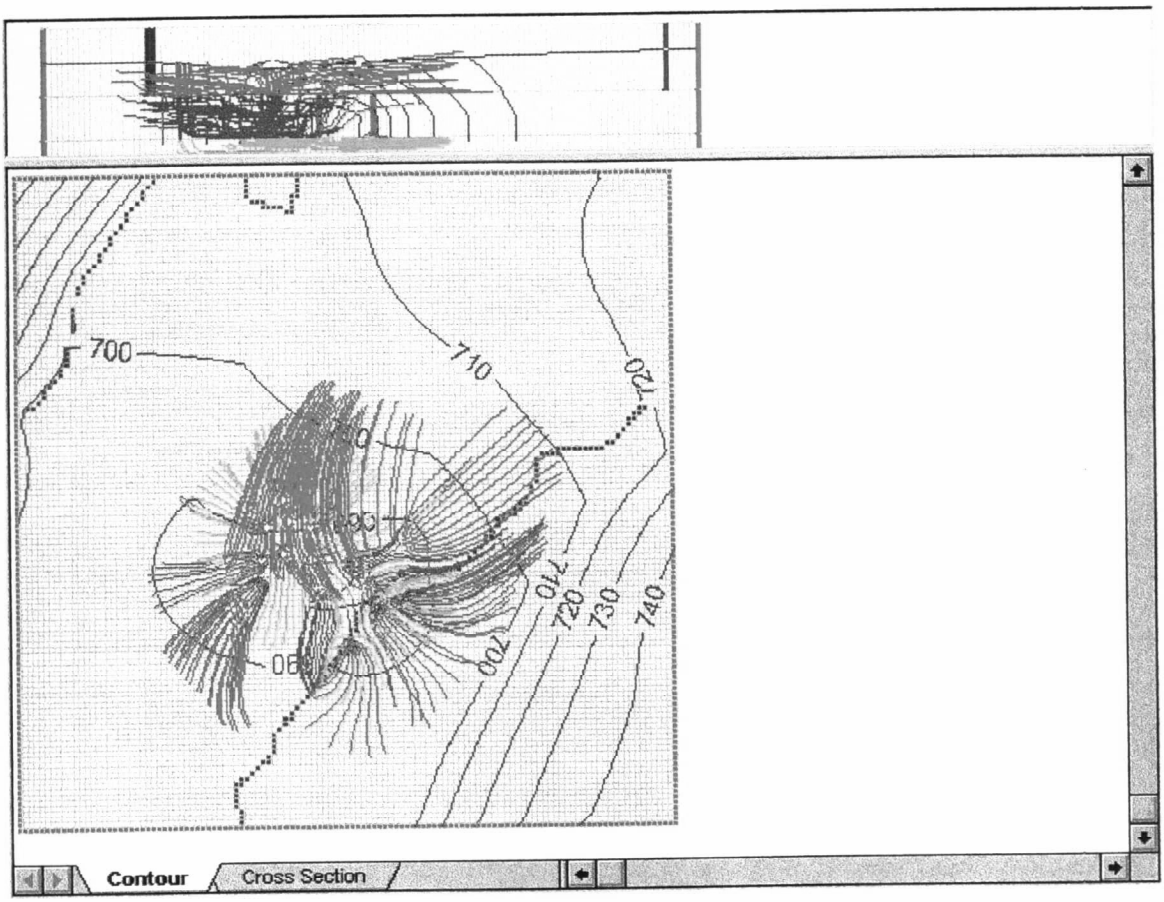


Figure 1. 5-year TOT capture zone for the Fall Creek well field showing contours and leakance distribution in the upper model layer. Green grid cells are resistance - head specified and red cells along the model perimeter are discharge specified (from the regional model). The modeled leakance between the upper and lower sand and gravel aquifer is 10-5 day $^{-1}$.

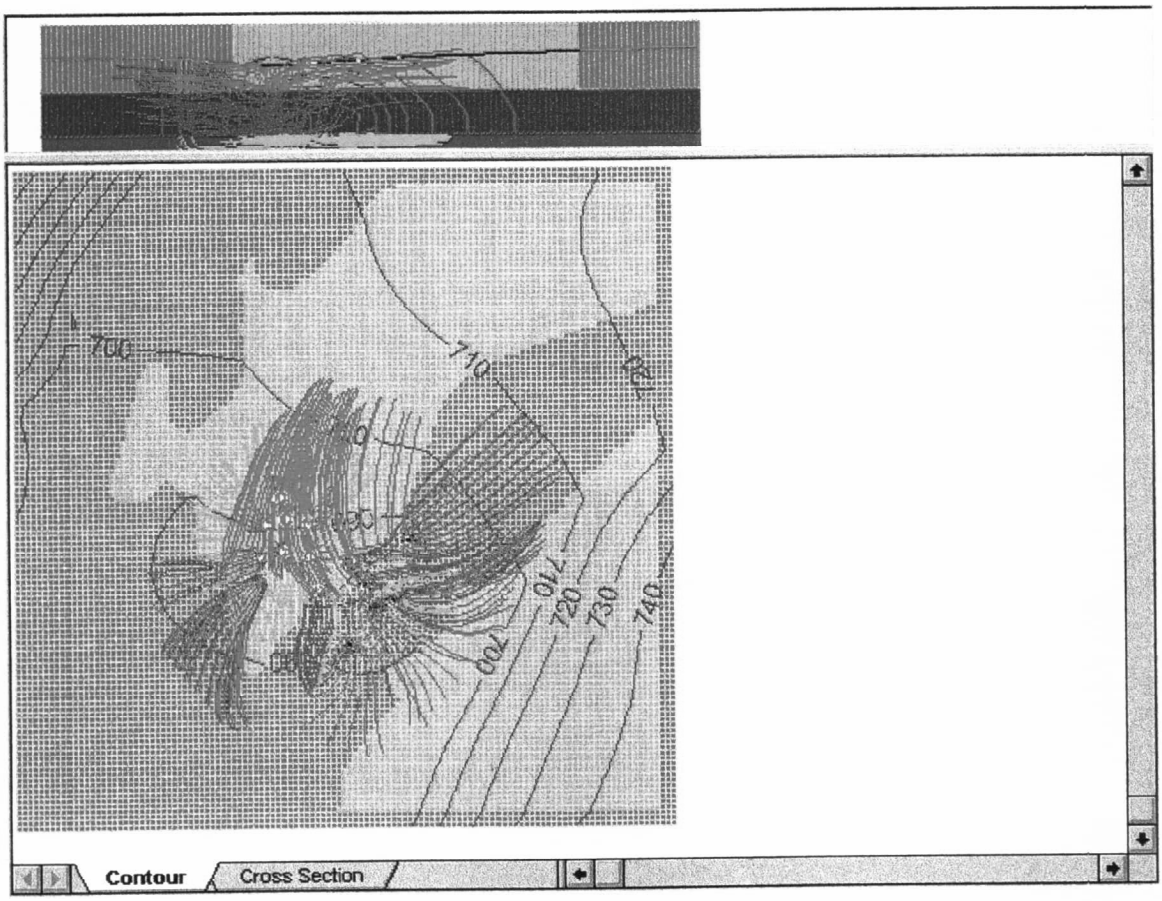


Figure 2. 5-year TOT capture zones for the Fall Creek well field showing contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, light blue is the area where the clay is absent. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-5 day^{-1} .

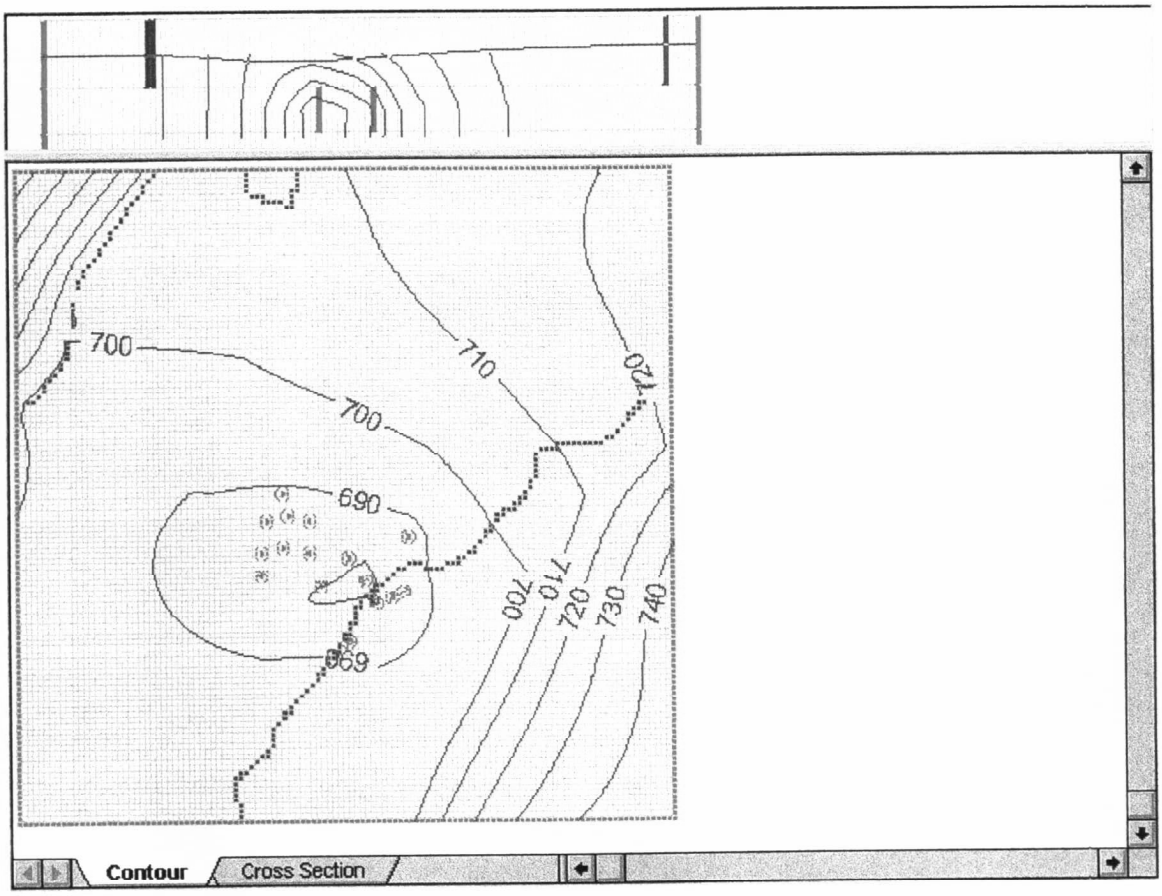


Figure 3. Piezometric contours and boundary conditions (streams) in the upper model layer at Fall Creek well field. This scenario models the clay layer with a leakance of 10-3 day^{-1} .

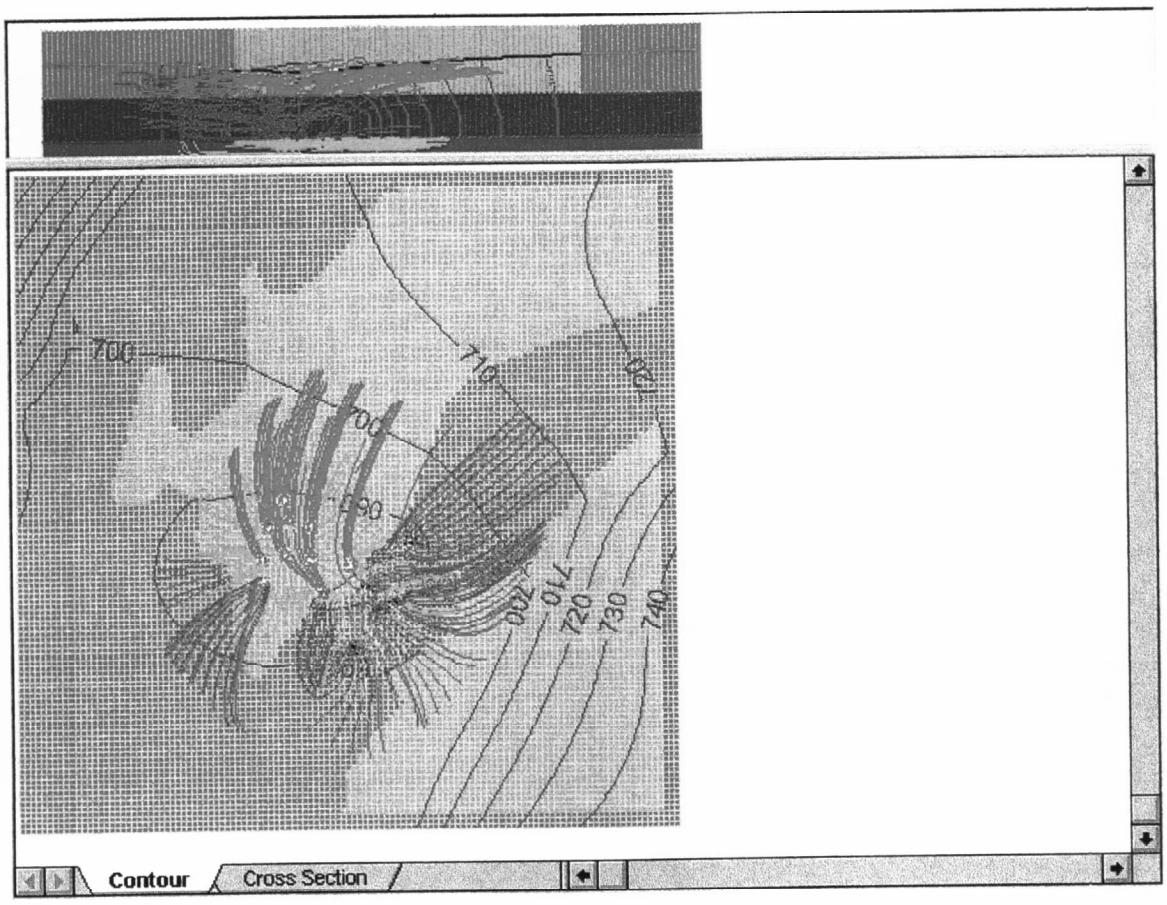


Figure 4. 5-year TOT capture zones for the Fall Creek well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, light blue is the area where the clay is absent. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-3 day^{-1} .

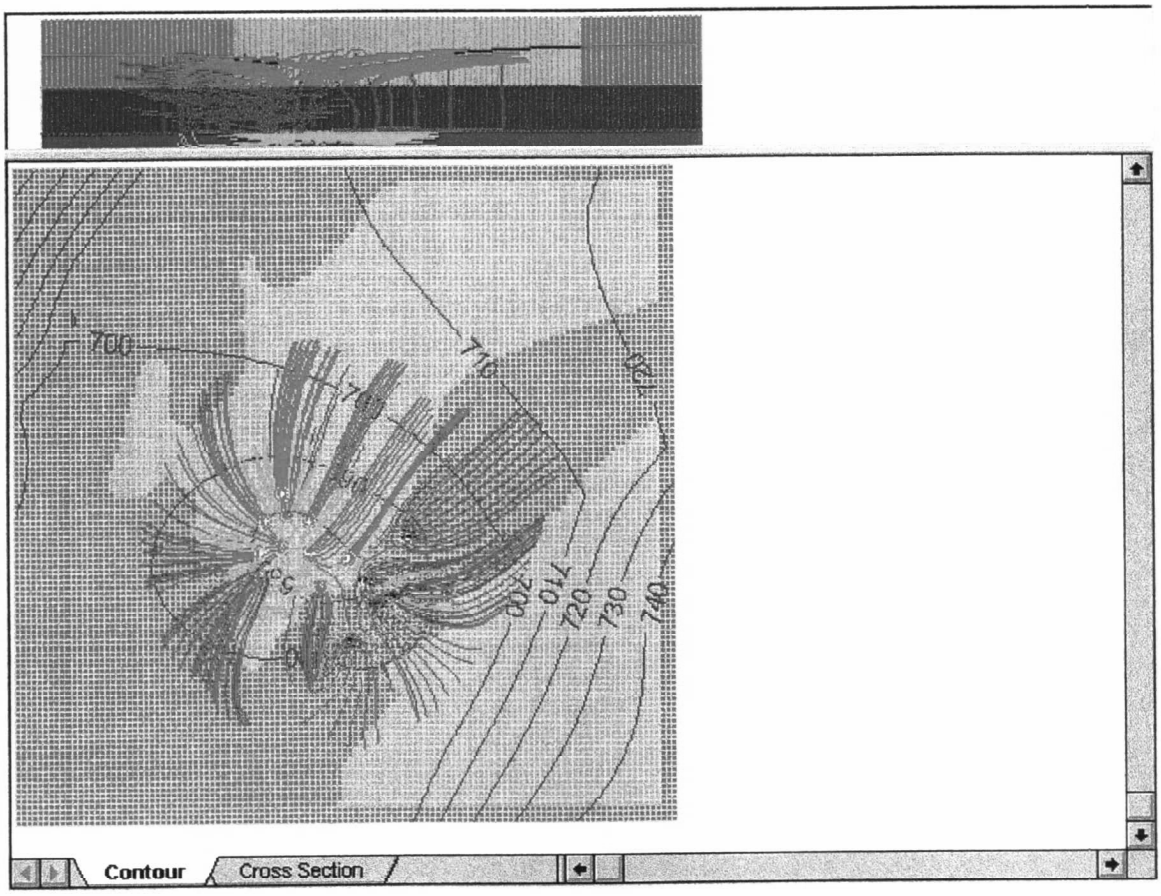


Figure 5. 5-year TOT capture zones for the Fall Creek well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, light blue is the area where the clay is absent. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 0.01 day^{-1} .

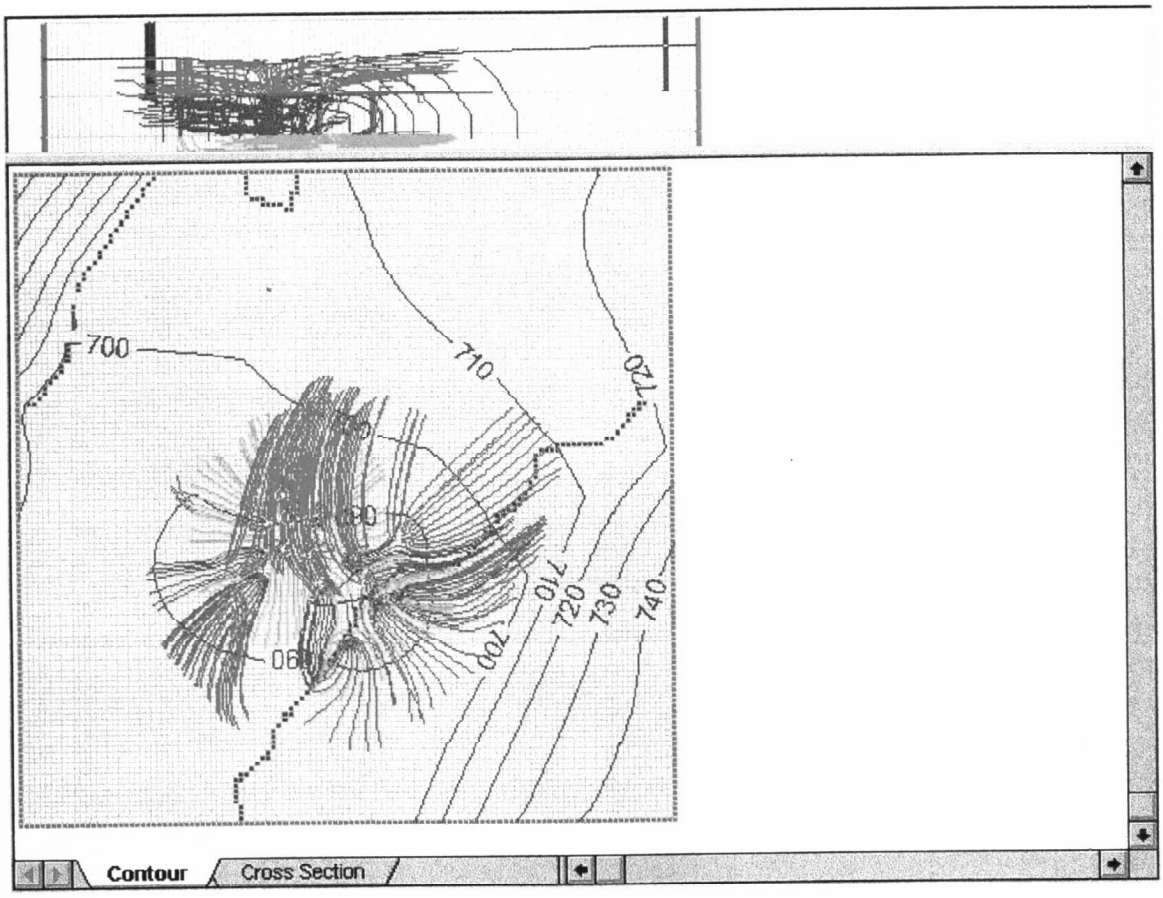


Figure 6. 5-year TOT capture zones for the Fall Creek well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, light blue is the area where the clay is absent. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-3 day^{-1} .

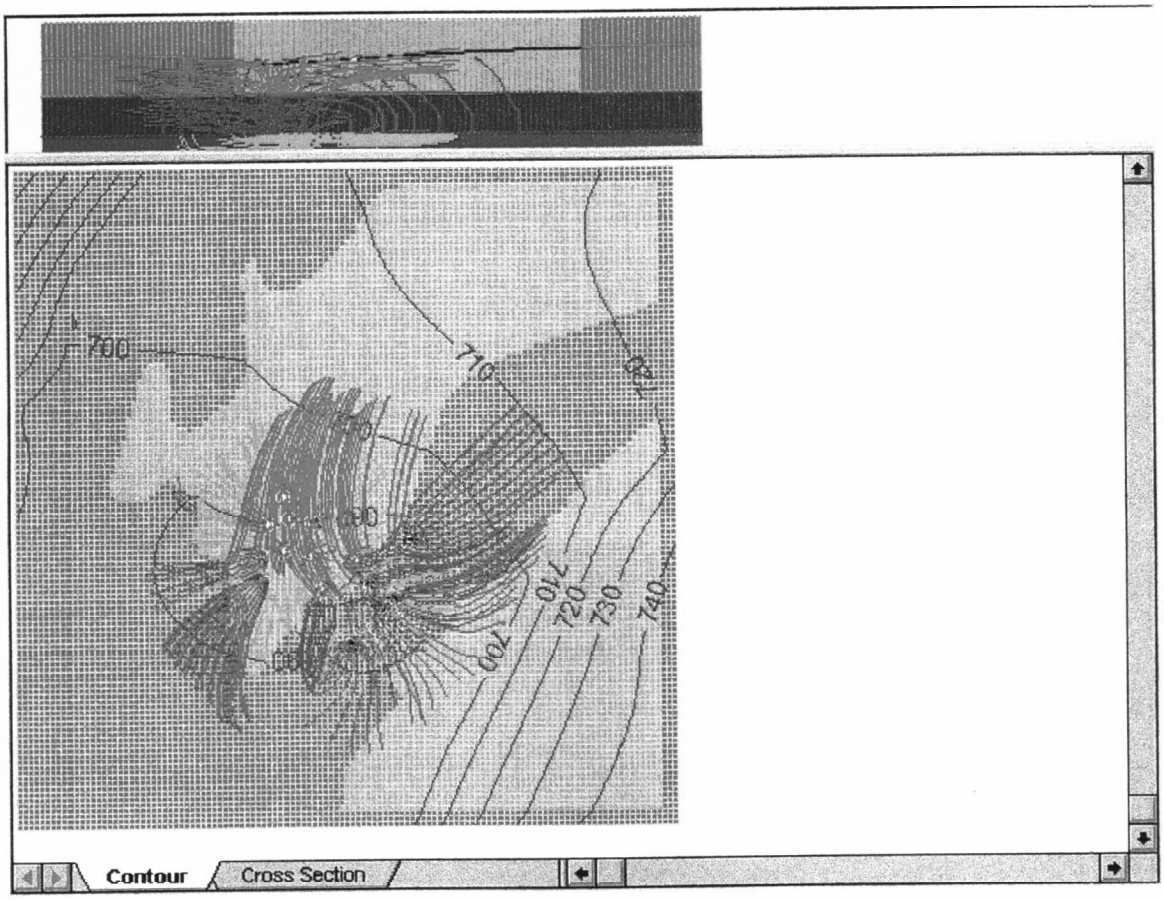


Figure 7. 5-year TOT capture zones for the Fall Creek well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, light blue is the area where the clay is absent. This scenario has modeled the lower sand and gravel layer below the clay as 10 feet thinner than previous models. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-5 day^{-1} .

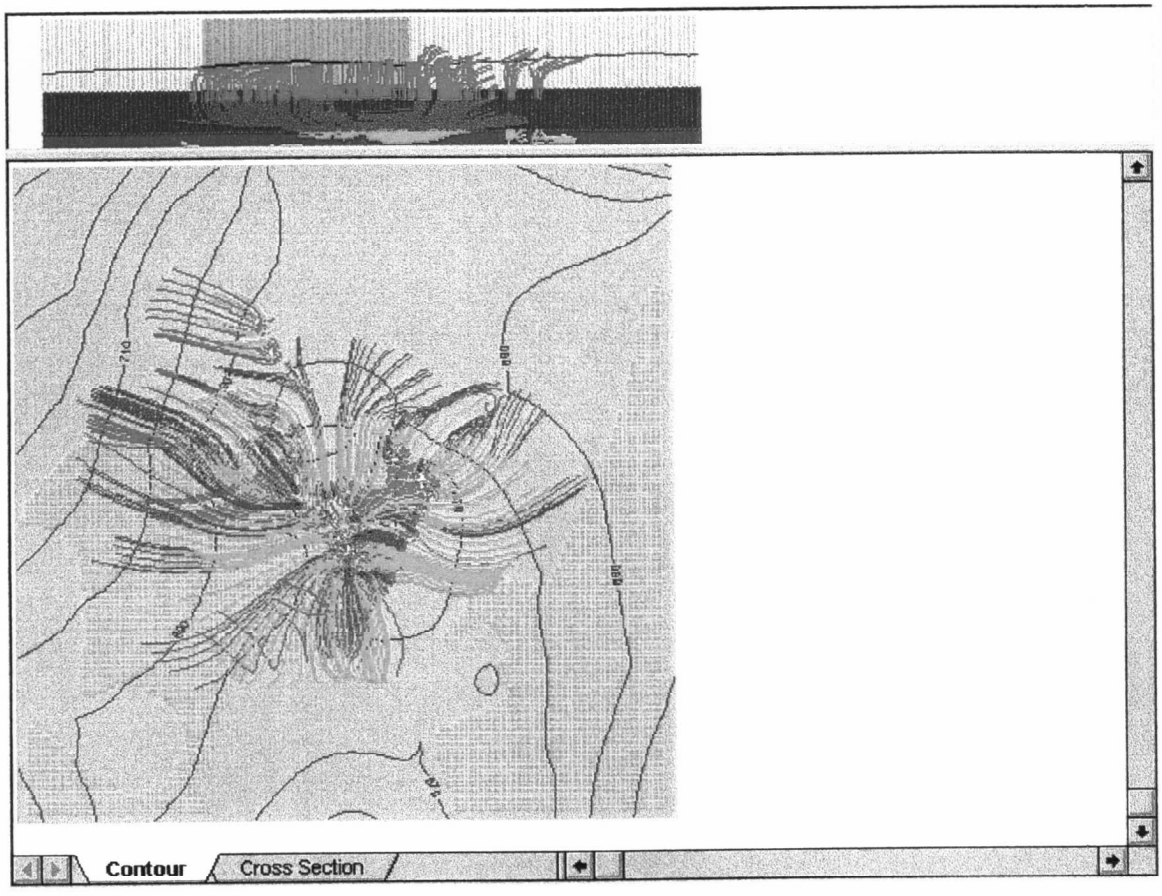


Figure 8. 5-year TOT capture zones for the Riverside well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, grey regions are where the clay is not mapped. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-5 day^{-1} .

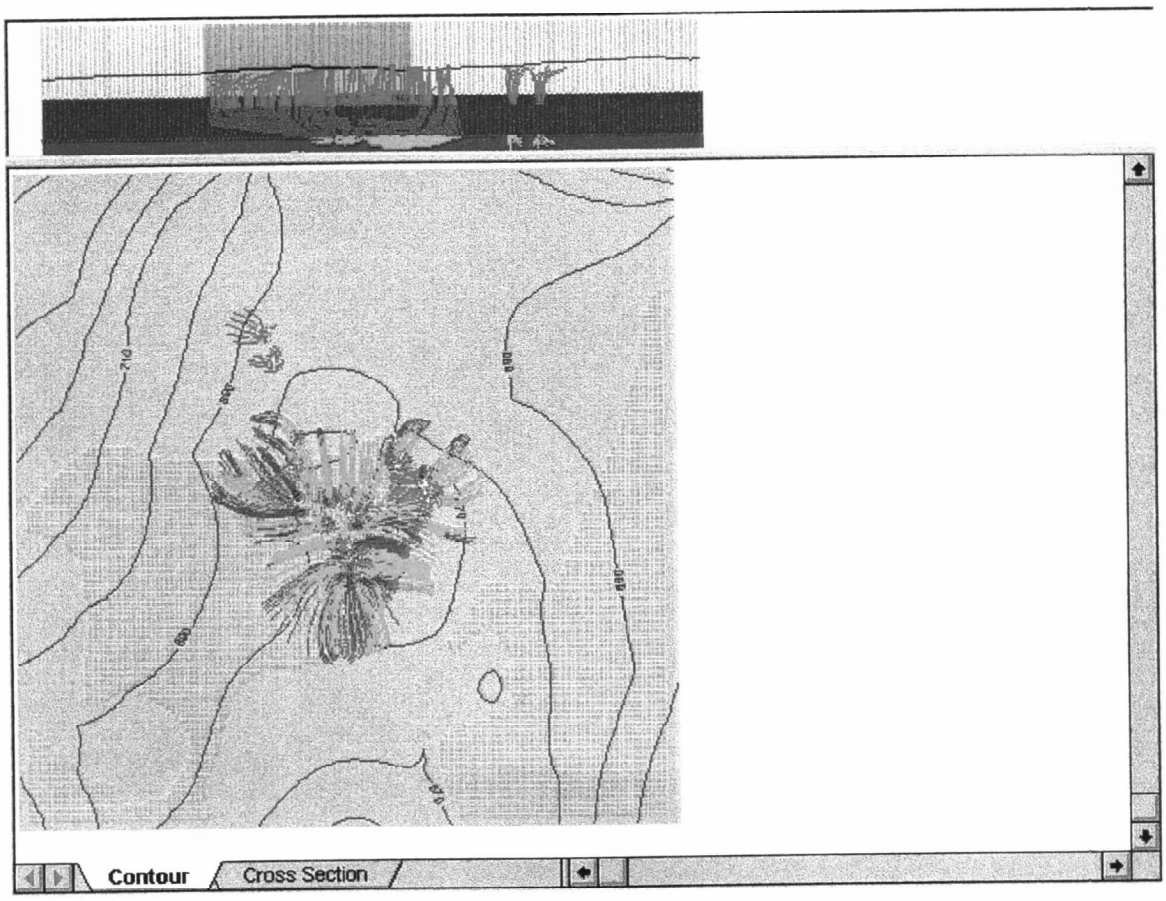


Figure 9. 1-year TOT capture zones for the Riverside well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, grey regions are where the clay is not mapped. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-5 day^{-1} .

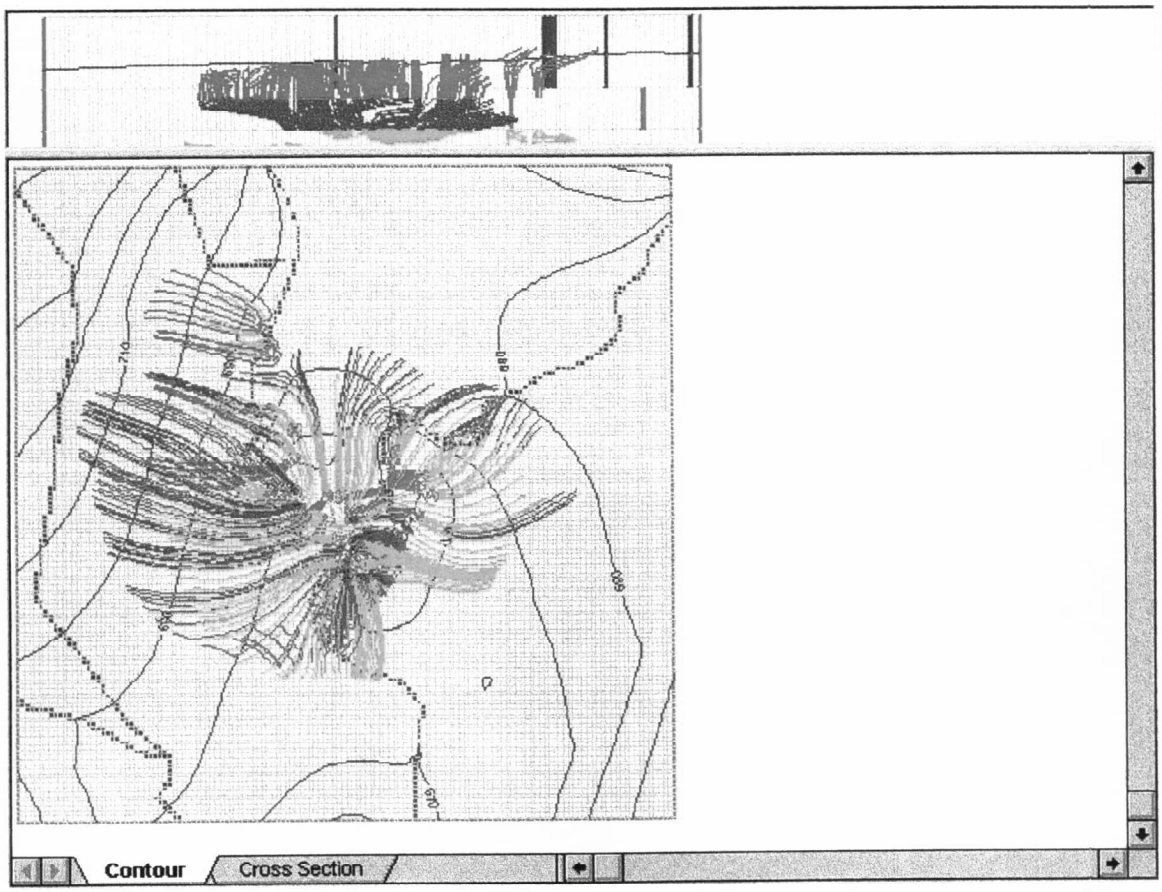


Figure 10. 5-year TOT capture zones for the Riverside well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, grey regions are where the clay is not mapped. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-3 day^{-1} .

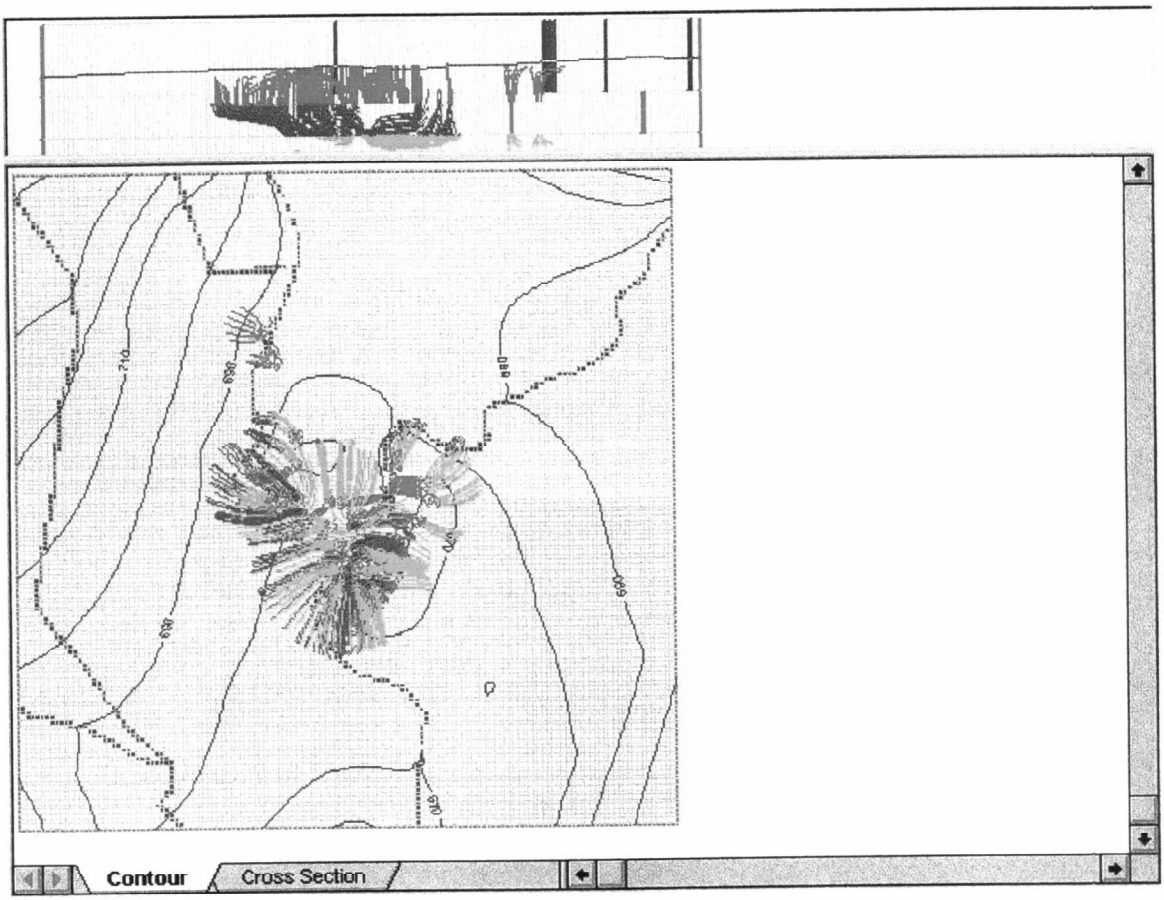


Figure 11. 1-year TOT capture zones for the Riverside well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, grey regions are where the clay is not mapped. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10-3 day^{-1} .

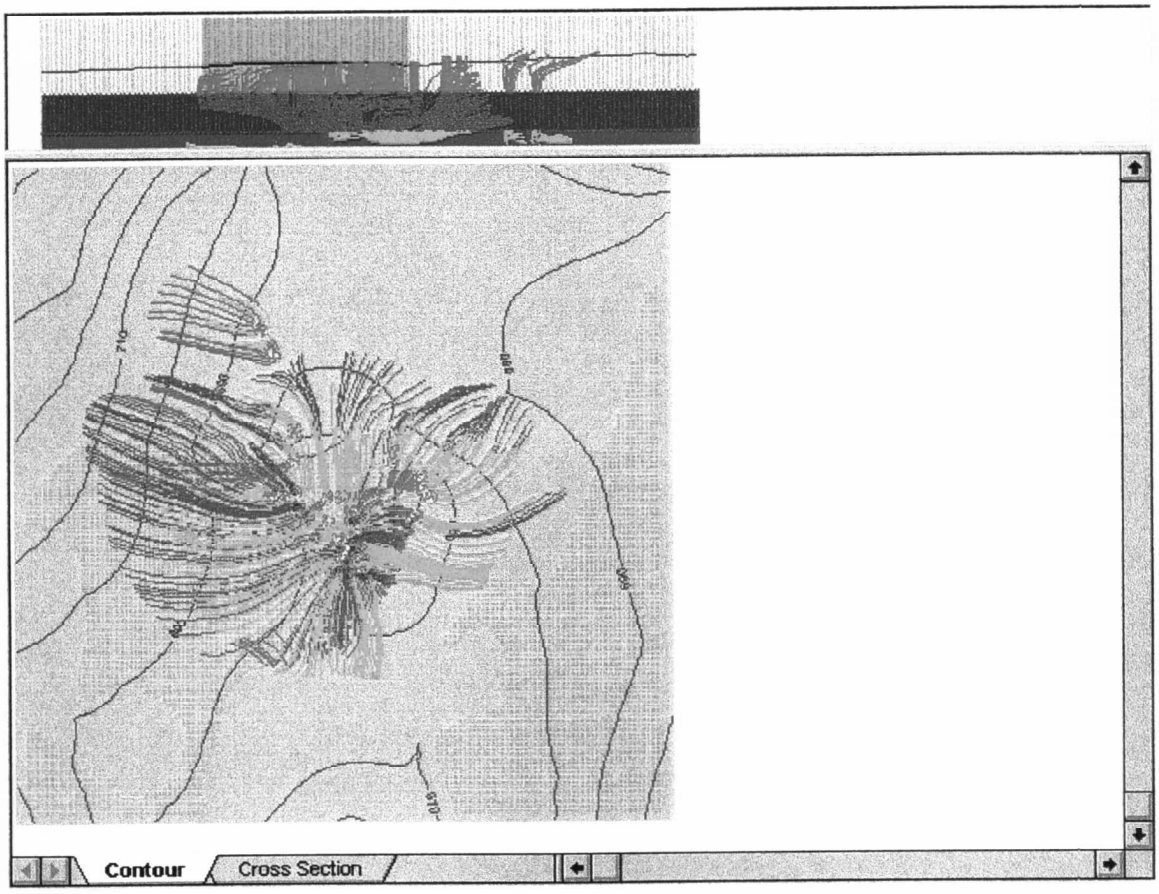


Figure 12. 5-year TOT capture zones for the Riverside well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, grey regions are where the clay is not mapped. This scenario has modeled the lower sand and gravel layer below the clay as 10 feet thicker than previous models. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10^{-5} day^{-1}.

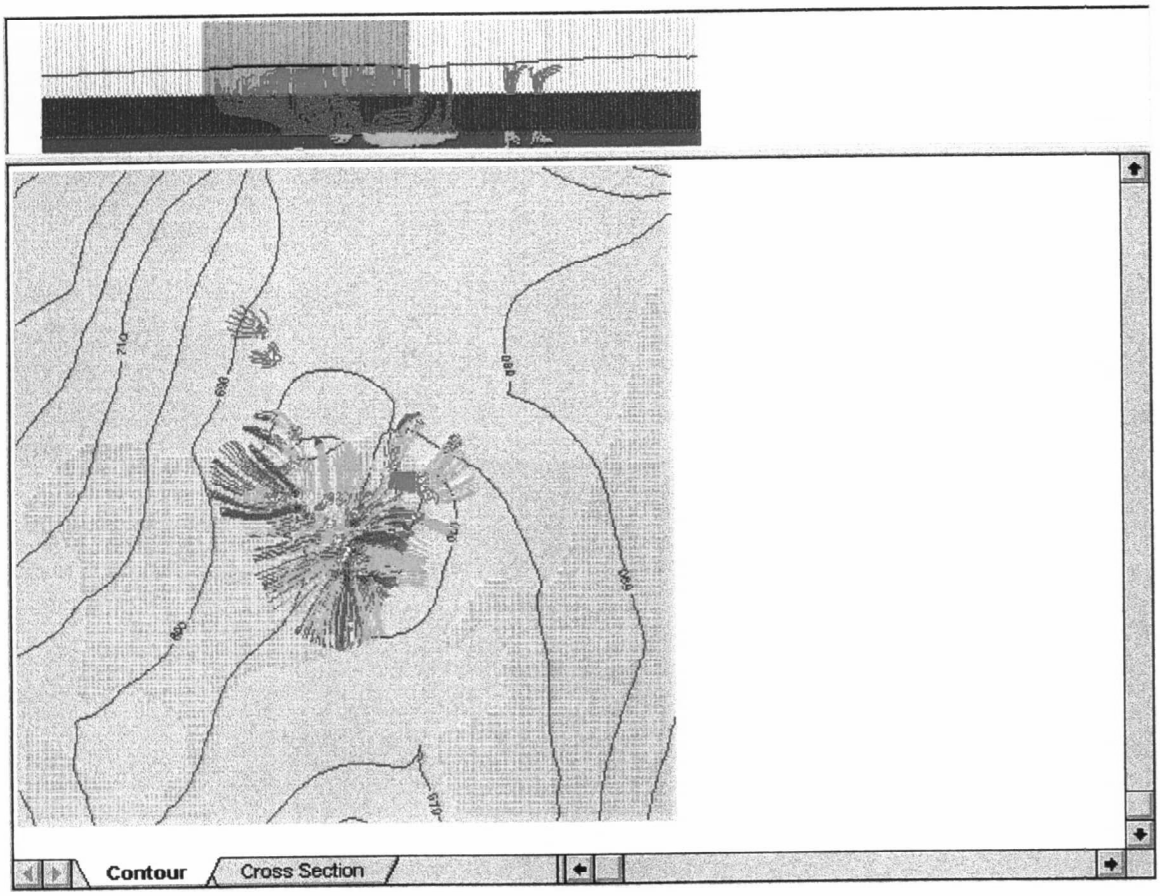


Figure 13. 1-year TOT capture zones for the Riverside well field showing piezometric contours and leakance distribution in the upper model layer. Yellow area is the mapped clay layer, grey regions are where the clay is not mapped. This scenario has modeled the lower sand and gravel layer below the clay as 10 feet thicker than previous models. Pathlines are yellow in the limestone aquifer, green in the deeper section of the outwash aquifer, and red in the upper aquifer. This scenario models the clay layer with a leakance of 10^{-5} day^{-1}.

Appendix B

IWC-Riverside & Fall Creek
WHPA Delineation Report

Example GFLOW Input File

(MODFLOW Input files on disk in sleeve)

```
 * Written by GFLOW1 version 1.1
error error.log
yes
message nul
echo con
quit
modelorigin    570000    4400000  1
title RIVERSIDE-FALLCREEK
layout
window -15000.00     0.0000000     17500.00     30000.00
quit
aquifer
permeability  20.00000
thickness     85.00000
base         595.0000
porosity      0.2000000
reference     1335930.     48109.65      817.5546
uniflow       0.0000000      0.0000000
quit
sinkdisc
discharge
*   x       y       xr       yr      top disch.  bottom disch. label
  -4241.   60070.   158487.   60070. -0.4566E-03  0.0000     __RAIN___0000
  -2213.  -17983.   -1667.  -17983.  0.5730      0.0000     AMER.AGGREGATES
quit
inhomogeneity
*       hydraul. cond.   added exf.rate   porosity
inhom    175.0000     -0.2740000E-02  0.2000000
  -19184.0996    -69949.7891  9-UTWASH
   -9464.4336    -54493.7227  9-UTWASH
   -3049.6658    -46717.9922  9-UTWASH
    442.8864     -39940.3359  9-UTWASH
    3114.9365    -33267.9492  9OUTWASH
    3383.7715    -26061.9590  9OUTWASH
    2854.8621    -21201.0977  9OUTWASH
    1294.4794    -13156.1104  9OUTWASH
    4747.9634     -8059.6499  9OUTWASH
    7892.3843      2443.7151  9OUTWASH
   13045.8906     10213.2881  9OUTWASH
   16184.5186     18812.9707  9OUTWASH
   18283.4395     24900.2109  9OUTWASH
   20460.6699     29233.8906  9OUTWASH
   23455.8125     33883.6563  9OUTWASH
   31217.4219     38933.9922  9OUTWASH
   39813.3789     33827.3711  9OUTWASH
   44075.9297     37305.9141  9OUTWASH
   39163.6133     42701.2188  9OUTWASH
   44843.6367     45272.0781  9OUTWASH
   50467.3359     48703.0234  9OUTWASH
   64497.6328     42978.6055  9OUTWASH
   71775.8047     61283.7500  9OUTWASH
   62365.0195     67141.0781  9OUTWASH
   54198.4805     62380.8281  9OUTWASH
   42122.5938     53962.7656  9OUTWASH
```

```
 34488.5391   51217.3945 9OUTWASH
 29982.4258   46262.3438 9OUTWASH
 26485.3555   44859.4141 9OUTWASH
 22792.0488   46663.5977 9OUTWASH
 23724.6270   51874.7344 9OUTWASH
 27911.6387   59925.0664 9OUTWASH
 36558.9141   73444.5781 9OUTWASH
 46732.5586   86544.8203 9OUTWASH
 36404.8672   91158.7344 9OUTWASH
 27912.0176   82050.2344 9OUTWASH
 18984.0430   65153.1406 9OUTWASH
 10131.7158   48722.4570 9OUTWASH
  6523.1143   40754.5391 9OUTWASH
  6466.5269   34842.6758 9OUTWASH
  5883.6816   28630.5430 9OUTWASH
  4929.3262   24615.9102 9OUTWASH
  2823.2112   21296.1660 9OUTWASH
  -691.5002   23045.4707 9OUTWASH
 -1206.6449   28888.0918 9OUTWASH
 -4363.3447   26916.2070 9OUTWASH
 -5106.4600   22061.6875 9OUTWASH
 -6717.7866   18357.3145 9OUTWASH
 -7585.9990   14781.7744 9OUTWASH
-11426.6709   17080.2031 9OUTWASH
-16131.4365   19851.5762 9OUTWASH
-25778.7969   20353.3145 9OUTWASH
-26818.9141   17138.9746 9OUTWASH
-25675.4121   14031.1514 9OUTWASH
-22141.5156   11029.8467 9OUTWASH
-17255.7813    8030.1094 9OUTWASH
 -8892.0508    1181.5897 9OUTWASH
 -8447.6992   -4199.1631 9OUTWASH
 -8092.8091  -10099.2861 9OUTWASH
-11974.0576  -11759.8672 9OUTWASH
-13239.2734  -16728.9941 9OUTWASH
-16285.7295  -26139.7539 9OUTWASH
-15069.2471  -33374.7695 9OUTWASH
-16611.1719  -40892.4258 9OUTWASH
-17794.9785  -48481.1719 9OUTWASH
-29179.9160  -67656.9063 9OUTWASH
*      hydraul. cond.   added exf.rate   porosity
 inhom    350.0000       0.0000000       0.2000000
 -4859.9995   4563.0107 9-
 -4227.6157  -2482.0085 9-
 -6322.3145  -4924.2197 9-
 -5962.8384 -10689.0371 9-
 -9857.6084 -19291.7363 9-
-11748.8271 -28581.8438 9-
-13351.4629 -42184.0977 9-
-12246.6182 -47854.8672 9-
 -8776.1621 -47140.5664 9-
 -5025.1030 -37317.9883 9-
 -1402.4526 -25025.7500 9-
  -622.8279 -16538.7383 9-
```

```
   601.0991   -11148.4287 9-
  2269.3284    -7134.6191 9-
  3716.2449    -4725.3271 9-
  5766.5269     1248.7697 9-
  7248.8027     6162.5098 9-
  8987.3467    10810.2754 9-
 10340.5186    15326.0244 9-
 11648.3369    22682.5117 9-
 12979.0811    29644.6309 9-
 11443.2510    29960.7402 9-
  8681.5332    23843.6348 9-
  5304.5586    20150.5508 9-
  3360.0994    18886.1133 9-
 -2546.9417    19915.3301 9-
 -5337.6396    18829.8379 9-
 -5603.1143    14908.7383 9-
 -5851.4419    11077.4023 9-
*      hydraul. cond.   added exf.rate   porosity
 inhom    450.0000      0.0000000      0.2000000
  -1673.5275      842.7314 [INNER
  -1123.4900      -59.3677 [INNER
   413.9778      700.8896 [INNER
     1.4497     1731.8331 [INNER
  -1136.1107     1693.2175 [INNER
  -1510.9650     1448.3378 [INNER
*      hydraul. cond.   added exf.rate   porosity
 inhom    60.00000      0.0000000      0.2000000
  21826.3574    20530.5410 13HIGHER_T
  23273.2188    13459.4121 13HIGHER_T
  22908.7832     8999.1611 13HIGHER_T
  17855.6465    -2167.7844 13HIGHER_T
  13166.9434    -9608.7881 13HIGHER_T
   8472.8008   -14074.4785 13HIGHER_T
  12084.5166   -23000.4199 13HIGHER_T
  15690.7930   -36027.6172 13HIGHER_T
  18579.0762   -52769.8750 13HIGHER_T
  42038.9102   -46819.2461 13HIGHER_T
  55033.4688   -17794.9805 13HIGHER_T
  51062.7578     9369.0352 13HIGHER_T
  40238.4922    29461.9219 13HIGHER_T
  23991.2109    27226.3574 13HIGHER_T
*      hydraul. cond.   added exf.rate   porosity
 inhom    5.000000      0.0000000      0.2000000
  -39534.7266   -25981.1719 6LOW_TRANS
  -42064.0156   -48304.1836 6LOW_TRANS
  -28705.0215   -48304.1836 6LOW_TRANS
  -20763.5996   -34912.5547 6LOW_TRANS
  -18239.7500   -17794.9805 6LOW_TRANS
  -25457.7422   -10723.8506 6LOW_TRANS
 quit
 well
 discharge
*    x          y       discharge     radius     label
 -574.0000     984.0000     612002.0     1.500    49-01004-1601
```

-6594.000	-2461.000	443378.0	1.500	49-00796-1601
-2953.000	-14846.00	247584.0	1.500	49-00475-1601
-5331.000	-4921.000	182246.0	1.500	49-01894-1601
13944.00	44783.00	156571.0	1.500	49-03324-1601
40272.00	38303.00	145043.0	1.500	49-00010-1601
902.0000	11237.00	139232.0	1.500	49-01637-1601
11319.00	44619.00	139175.0	1.500	49-03324-1601
53724.00	56348.00	132707.0	1.500	49-03053-1601
11073.00	44619.00	121778.0	1.500	49-03324-1601
10745.00	44619.00	104381.0	1.500	49-03324-1602
40600.00	38221.00	92271.00	1.500	49-00010-1601
14600.00	44783.00	86984.00	1.500	49-03324-1601
10663.00	44619.00	86984.00	1.500	49-03324-1602
14354.00	44783.00	86984.00	1.500	49-03324-1603
2543.000	-656.0000	86065.00	1.500	49-00414-1601
-6234.000	-4921.000	82333.00	1.500	49-01894-1601
-2625.000	-28756.00	81124.00	1.500	49-03054-1601
-7464.000	-7300.000	78231.00	1.500	49-01894-1601
-27313.00	62745.00	74887.00	1.500	49-00365-1601
-27231.00	62827.00	74883.00	1.500	49-00365-1602
5495.000	7464.000	72302.00	1.500	49-02797-1601
14026.00	44783.00	69587.00	1.500	49-03324-1601
2395.000	-328.0000	65947.00	1.500	49-00414-1601
43225.00	47162.00	63918.00	1.500	49-01383-1601
2379.000	-902.0000	58882.00	1.500	49-00414-1601
3035.000	15666.00	95500.00	1.500	49-01377-1601
3035.000	16076.00	95500.00	1.500	49-01377-1602
1804.000	16158.00	95500.00	1.500	49-01377-1603
3445.000	15010.00	56889.00	1.500	49-01377-1604
4183.000	16322.00	56322.00	1.500	49-00544-1601
6316.000	8038.000	54458.00	1.500	49-00366-1601
2625.000	14600.00	95500.00	1.500	49-01377-1601
6152.000	7792.000	50922.00	1.500	49-00366-1601
-5249.000	-5741.000	50835.00	1.500	49-01894-1601
12008.00	27805.00	48257.00	1.500	49-02774-1601
1558.000	17142.00	95500.00	1.500	49-01377-1601
2789.000	-1148.000	43880.00	1.500	49-00414-1601
2871.000	-1968.000	41650.00	1.500	49-00414-1602
25262.00	-19275.00	40527.00	1.500	49-01833-1601
3248.000	2379.000	40064.00	1.500	49-03354-1601
-8120.000	-3117.000	37284.00	1.500	49-01895-1601
-19275.00	13041.00	35892.00	1.500	49-00300-1601
51099.00	50770.00	33376.00	1.500	49-02670-1601
51427.00	51016.00	33374.00	1.500	49-02670-1602
52001.00	52575.00	30232.00	1.500	49-03396-1601
54265.00	41699.00	29894.00	1.500	49-02678-1601
1969.000	14960.00	47000.00	1.500	49-01377-1601
-8120.000	-2789.000	28018.00	1.500	49-01895-1601
15879.00	31004.00	26711.00	1.500	49-01378-1601
15994.00	30265.00	26711.00	1.500	49-01378-1602
15256.00	28789.00	26711.00	1.500	49-01378-1603
17224.00	31742.00	26711.00	1.500	49-01378-1604
16568.00	30265.00	26711.00	1.500	49-01378-1605
17142.00	31250.00	26711.00	1.500	49-01378-1606

17224.00	31742.00	26465.00	1.500	49-01378-1607
16568.00	30265.00	26465.00	1.500	49-01378-1608
15256.00	28789.00	26465.00	1.500	49-01378-1609
15994.00	30265.00	26465.00	1.500	49-01378-1610
15879.00	31004.00	26465.00	1.500	49-01378-1611
17142.00	31250.00	26465.00	1.500	49-01378-1612
-18127.00	11073.00	26370.00	1.500	49-01115-1601
5988.000	7956.000	25746.00	1.500	49-00366-1601
-6070.000	-6398.000	24319.00	1.500	49-01894-1601
62254.00	54461.00	24245.00	1.500	49-02939-1601
-6890.000	-11483.00	23733.00	1.500	49-01914-1601
820.0000	10663.00	23103.00	1.500	49-02773-1601
6070.000	8120.000	23086.00	1.500	49-00366-1601
50968.00	51115.00	22248.00	1.500	49-02670-1601
52592.00	20685.00	20825.00	1.500	49-02849-1601
8366.000	6726.000	20574.00	1.500	49-00275-1601
3609.000	4593.000	20147.00	1.500	49-00364-1601
15994.00	30265.00	20026.00	1.500	49-01378-1601
17224.00	31742.00	20026.00	1.500	49-01378-1602
15256.00	28789.00	20026.00	1.500	49-01378-1603
16568.00	30265.00	20026.00	1.500	49-01378-1604
15879.00	31004.00	20026.00	1.500	49-01378-1605
17142.00	31250.00	20026.00	1.500	49-01378-1606
-10400.00	60235.00	19448.00	1.500	49-02992-1601
-246.0000	12303.00	30000.00	1.500	49-01380-1601
-164.0000	12549.00	30000.00	1.500	49-01380-1602
-410.0000	11811.00	30000.00	1.500	49-01380-1603
-902.0000	12139.00	30000.00	1.500	49-01380-1604
-492.0000	11975.00	30000.00	1.500	49-01380-1605
328.0000	11893.00	30000.00	1.500	49-01380-1606
328.0000	12549.00	30000.00	1.500	49-01380-1607
-164.0000	12795.00	30000.00	1.500	49-01380-1608
-82.00000	14189.00	30000.00	1.500	49-01380-1609
-2707.000	15092.00	30000.00	1.500	49-01380-1610
-2215.000	14846.00	30000.00	1.500	49-01380-1611
-3035.000	15174.00	30000.00	1.500	49-01380-1612
6398.000	7054.000	17997.00	1.500	49-02584-1601
-8120.000	-3527.000	16664.00	1.500	49-01895-1601
20505.00	6660.000	16539.00	1.500	49-00744-1601
17224.00	31742.00	15866.00	1.500	49-01378-1601
15879.00	31004.00	15866.00	1.500	49-01378-1602
15994.00	30265.00	15866.00	1.500	49-01378-1603
16568.00	30265.00	15866.00	1.500	49-01378-1604
15256.00	28789.00	15866.00	1.500	49-01378-1605
17142.00	31250.00	15866.00	1.500	49-01378-1606
-31988.00	4019.000	15437.00	1.500	49-01178-1601
5988.000	5577.000	15174.00	1.500	49-02747-1601
5988.000	5249.000	15168.00	1.500	49-02747-1602
6316.000	5577.000	15086.00	1.500	49-02747-1603
-19439.00	12795.00	15016.00	1.500	49-00300-1601
-32316.00	4019.000	14167.00	1.500	49-01178-1601
-23622.00	15338.00	13917.00	1.500	49-00300-1601
40272.00	37811.00	12659.00	1.500	49-00010-1601
17142.00	31250.00	12423.00	1.500	49-01378-1601

17224.00	31742.00	12423.00	1.500	49-01378-1602
16568.00	30265.00	12423.00	1.500	49-01378-1603
15879.00	31004.00	12423.00	1.500	49-01378-1604
15994.00	30265.00	12423.00	1.500	49-01378-1605
15256.00	28789.00	12423.00	1.500	49-01378-1606
-6726.000	-6972.000	12233.00	1.500	49-01894-1601
6316.000	5249.000	12076.00	1.500	49-02747-1601
-2051.000	6726.000	11267.00	1.500	49-01177-1601
21900.00	16896.00	11210.00	1.500	49-00230-1601
1476.000	10991.00	11075.00	1.500	49-02773-1601
-22638.00	15830.00	10987.00	1.500	49-00300-1601
2083.000	5331.000	10841.00	1.500	49-00747-1601
8120.000	6726.000	10469.00	1.500	49-00275-1601
-13041.00	12057.00	10255.00	1.500	49-00300-1601
-34531.00	20341.00	10194.00	1.500	49-00749-1601
-22802.00	16240.00	9889.000	1.500	49-00300-1601
-22638.00	12467.00	9889.000	1.500	49-00300-1602
31414.00	25426.00	9743.000	1.500	49-00243-1601
-13123.00	16404.00	9375.000	1.500	49-00180-1601
-16240.00	11647.00	9339.000	1.500	49-00438-1601
-17142.00	10909.00	9229.000	1.500	49-01115-1601
-23130.00	13287.00	8790.000	1.500	49-00300-1601
-7136.000	-35351.00	8057.000	1.500	49-00469-1601
-23868.00	15912.00	7691.000	1.500	49-00300-1601
-16732.00	-5741.000	7616.000	1.500	49-00493-1601
-21325.00	11483.00	7325.000	1.500	49-00300-1601
-20259.00	13205.00	7325.000	1.500	49-00300-1602
23294.00	56020.00	6856.000	1.500	49-00138-1601
-22310.00	63237.00	6616.000	1.500	49-00270-1601
-22228.00	13697.00	6592.000	1.500	49-00300-1601
33136.00	45195.00	6339.000	1.500	49-01626-1601
-35433.00	4757.000	5953.000	1.500	49-02575-1601
21900.00	16322.00	5820.000	1.500	49-00230-1601
410.0000	15830.00	5588.000	1.500	49-00433-1601
53117.00	24048.00	5063.000	1.500	49-03375-1601
-2543.000	10006.00	4889.000	1.500	49-01023-1601
1886.000	-16650.00	4798.000	1.500	49-02170-1601
-17388.00	10417.00	4798.000	1.500	49-01115-1601
-2297.000	-14846.00	4761.000	1.500	49-00475-1601
-4019.000	-14107.00	4761.000	1.500	49-00475-1602
25016.00	56184.00	4747.000	1.500	49-00138-1601
40600.00	37795.00	4288.000	1.500	49-00010-1601
8120.000	7136.000	3934.000	1.500	49-00275-1601
15994.00	30265.00	3868.000	1.500	49-01378-1601
17142.00	31250.00	3868.000	1.500	49-01378-1602
17224.00	31742.00	3868.000	1.500	49-01378-1603
15256.00	28789.00	3868.000	1.500	49-01378-1604
16568.00	30265.00	3868.000	1.500	49-01378-1605
15879.00	31004.00	3868.000	1.500	49-01378-1606
3609.000	-16486.00	3838.000	1.500	49-01060-1601
52411.00	53233.00	3718.000	1.500	49-03396-1601
62172.00	52247.00	3296.000	1.500	49-00129-1601
-22638.00	63237.00	3195.000	1.500	49-00270-1601
-34285.00	19636.00	2698.000	1.500	49-00749-1601

-7874.000	36745.00	2335.000	1.500	49-02096-1601
-16158.00	12139.00	2088.000	1.500	49-01115-1601
56841.00	16650.00	2070.000	1.500	49-02661-1601
56677.00	15994.00	1937.000	1.500	49-02661-1602
-1722.000	6644.000	1885.000	1.500	49-01177-1601
-15174.00	11893.00	1831.000	1.500	49-01115-1601
-16978.00	11155.00	1758.000	1.500	49-01115-1602
33711.00	4429.000	1723.000	1.500	49-01870-1601
-8038.000	36745.00	1542.000	1.500	49-02096-1601
2215.000	-2379.000	1538.000	1.500	49-00414-1601
2379.000	16814.00	1.000000	1.500	49-01377-1601
3363.000	6890.000	1078.000	1.500	49-00474-1601
-19275.00	60203.00	1078.000	1.500	49-00687-1601
-16142.00	8858.000	949.0000	1.500	49-03319-1601
31168.00	41010.00	850.0000	1.500	49-02732-1601
31693.00	41371.00	850.0000	1.500	49-02732-1602
-17224.00	6316.000	850.0000	1.500	49-00468-1601
-14846.00	9104.000	842.0000	1.500	49-01115-1601
-35023.00	20538.00	838.0000	1.500	49-00749-1601
5988.000	-9350.000	837.0000	1.500	49-01387-1601
48146.00	1394.000	834.0000	1.500	49-01869-1601
25755.00	-38877.00	769.0000	1.500	49-00951-1601
12467.00	6562.000	747.0000	1.500	49-00330-1601
3035.000	-16650.00	734.0000	1.500	49-02173-1601
56759.00	16322.00	720.0000	1.500	49-02661-1601
82.00000	-14928.00	714.0000	1.500	49-01386-1601
-13533.00	16076.00	701.0000	1.500	49-00180-1601
-18865.00	10909.00	659.0000	1.500	49-01115-1601
36056.00	57416.00	622.0000	1.500	49-03186-1601
1804.000	-9924.000	619.0000	1.500	49-02175-1601
-7218.000	36745.00	555.0000	1.500	49-02096-1601
-31168.00	22145.00	527.0000	1.500	49-03223-1601
1230.000	-14928.00	485.0000	1.500	49-02861-1601
-6890.000	37073.00	450.0000	1.500	49-02096-1601
1969.000	-14354.00	363.0000	1.500	49-02056-1601
6152.000	-9350.000	356.0000	1.500	49-01387-1601
1394.000	10909.00	333.0000	1.500	49-02773-1601
1969.000	10170.00	333.0000	1.500	49-02773-1602
48146.00	1230.000	289.0000	1.500	49-01869-1601
3281.000	16896.00	264.0000	1.500	49-00866-1601
-18865.00	61845.00	242.0000	1.500	49-00687-1601
-31414.00	22227.00	198.0000	1.500	49-03223-1601
30610.00	40108.00	191.0000	1.500	49-02732-1601
32152.00	41994.00	191.0000	1.500	49-02732-1602
32054.00	41568.00	191.0000	1.500	49-02732-1603
32612.00	41896.00	191.0000	1.500	49-02732-1604
33005.00	41765.00	191.0000	1.500	49-02732-1605
30545.00	40846.00	191.0000	1.500	49-02732-1606
1969.000	-14518.00	168.0000	1.500	49-02056-1601
3445.000	16896.00	161.0000	1.500	49-00866-1601
3445.000	-12467.00	154.0000	1.500	49-01614-1601
-15174.00	9186.000	146.0000	1.500	49-01115-1601
33711.00	4347.000	116.0000	1.500	49-01870-1601
2707.000	-19439.00	99.00000	1.500	49-01912-1601

```
 4265.000    -17306.00     85.00000     1.500   49-01357-1601
 58645.00     22966.00     73.00000     1.500   49-03306-1601
-15010.00     9121.000     73.00000     1.500   49-01115-1601
-21227.00     62895.00     66.00000     1.500   49-02673-1601
 6562.000     8120.000     65.00000     1.500   49-02613-1601
-738.0000    -14600.00     59.00000     1.500   49-01386-1601
 82.00000    -15010.00     57.00000     1.500   49-01386-1602
 4019.000    -22227.00     48.00000     1.500   49-00759-1601
 61434.00     52247.00     38.00000     1.500   49-00129-1601
 6808.000     8120.000     36.00000     1.500   49-02613-1601
-2625.000    -2215.000     33.00000     1.500   49-02822-1601
 33383.00     44783.00     13.00000     1.500   49-01626-1601
 6890.000    -23130.00     11.00000     1.500   49-00899-1601
 6890.000    -23294.00     10.00000     1.500   49-00899-1602
-2543.000    -2543.000     9.000000     1.500   49-02822-1601
 1804.000    -22638.00     8.000000     1.500   49-00985-1601
-3527.000     26821.00     3.000000     1.500   49-02790-1601
 6644.000     7956.000     3.000000     1.500   49-02161-1601
 4839.000    -11975.00     1.000000     1.500   49-01199-1601
 6808.000     7792.000     1.000000     1.500   49-02613-1601
-14108.00     246.0000     1.000000     1.500   49-02433-1601
 19111.00     30593.00     0.0000000    1.500   49-00394-1601
 6562.000     7792.000     0.0000000    1.500   49-02613-1601
-1395.000    -30593.00     48125.00     1.500   SWF-21660801
-1640.000    -28755.00     48125.00     1.500   SWF-31660801
-2460.000    -30429.00     48125.00     1.500   SWF-41660801
quit
linesink
stream
*   x        y     head      width      label
resistance  20.00000
depth  10.00000
 -22881.  133017.  915.9000     10.00000   EC_____0101
 -25604.  126550.  902.5000     10.00000   EC_____0102
 -25604.  117359.  887.2000     10.00000   EC_____0103
 -27306.  109530.  873.9000     10.00000   EC_____0104
 -29689.  103403.
stream
*   x        y     head      width      label
resistance  10.00000
 -29689.  102381.  858.6000     20.00000   EC_____0201
 -29689.  93870.   846.8000     20.00000   EC_____0202
 -26965.  87402.   836.3000     20.00000   EC_____0203
 -23902.  80253.   824.4000     20.00000   EC_____0204
 -21859.  72765.   814.0000     20.00000   EC_____0205
 -25604.  65957.   803.3000     20.00000   EC_____0206
 -29689.  57786.   793.3000     20.00000   EC_____0207
resistance  100.0000
depth  50.00000
 -33086.  50964.   792.5000     300.0000   EC_____0401
 -33824.  45500.   790.3000     300.0000   EC_____0402
 -33824.  40921.   789.0000     300.0000   EC_____0403
 -33677.  36195.   785.2000     300.0000   EC_____0404
 -33086.  31617.   783.6000     300.0000   EC_____0405
```

```
-33086.   29698.  781.8000     300.0000   EC_____0406
-35449.   29106.
stream
*   x       y     head       width       label
resistance  10.00000
depth  10.00000
-34795.   26245.  742.6000     10.00000   EC_____0210
-32412.   22470.  728.8000     10.00000   EC_____0211
-26285.   18725.  716.0000     10.00000   EC_____0212
-24582.   13960.
stream
*   x       y     head       width       label
resistance  1.000000
-23890.   13866.  707.0000     10.00000   EC_____0301
-19503.   10841.  701.7000     10.00000   EC_____0302
-15871.    8875.  697.0000     10.00000   EC_____0303
-14056.    6453.  689.6000     10.00000   EC_____0304
 -9366.    4637.  679.2000     10.00000   EC_____0305
 -7096.     251.  671.2000     10.00000   EC_____0306
 -5130.   -3532.  667.2000     10.00000   EC_____0307
 -3919.   -6860.  664.3000     10.00000   EC_____0308
 -4222.  -10794.
stream
end
*   x       y     head       width       label
resistance  20.00000
-59388.   71341.  910.8000     10.00000   WLC_____0101
-58707.   61809.  895.0000     10.00000   WLC_____0102
-57686.   52278.  881.4000     10.00000   WLC_____0103
-60750.   44788.  862.6000     10.00000   WLC_____0104
-60750.   36958.  842.1000     10.00000   WLC_____0105
-65175.   29809.  822.4000     10.00000   WLC_____0106
-66196.   20959.  793.9000     10.00000   WLC_____0107
-66537.    8363.  763.9000     10.00000   WLC_____0108
-66196.   -2529.  734.3000     10.00000   WLC_____0109
-64154.  -15807.  704.0000     10.00000   WLC_____0110
-58367.  -27380.  679.3000     10.00000   WLC_____0111
-58367.  -42019.  659.2000     10.00000   WLC_____0112
-54282.  -54274.  643.7000     10.00000   WLC_____0113
-49516.  -63378.  630.7000     10.00000   WLC_____0114
-48835.  -72911.  619.7000     10.00000   WLC_____0115
-51899.  -80399.
stream
*   x       y     head       width       label
resistance  5.000000
-44026.   16960.  799.5000     10.00000   EFWLC____0101
-38239.   14237.  776.6000     10.00000   EFWLC____0102
-35176.    9130.  759.2000     10.00000   EFWLC____0103
-36197.     281.  741.3000     10.00000   EFWLC____0104
-39261.   -6529.  726.2000     10.00000   EFWLC____0105
-40282.  -14698.  713.4000     10.00000   EFWLC____0106
-41984.  -22869.  699.1000     10.00000   EFWLC____0107
-44026.  -32741.  683.6000     10.00000   EFWLC____0108
-46750.  -40912.  663.0000     10.00000   EFWLC____0109
```

```
 -51516.  -54187.
stream
end
*   x       y     head      width      label
  70504.   79384.  792.4000    10.00000   MC_____0101
  59610.   75639.  779.7000    10.00000   MC_____0102
  51440.   70532.  769.8000    10.00000   MC_____0103
  50760.   59640.  761.9000    10.00000   MC_____0104
  47355.   54873.  755.6000    10.00000   MC_____0105
  45653.   51130.  748.5000    10.00000   MC_____0106
  43951.   47724.
stream
*   x       y     head      width      label
 resistance  10.00000
  29567.   21994.  790.3000    10.00000   UPR_____0101
  25482.   17910.  767.3000    10.00000   UPR_____0102
  22419.   15187.  740.3000    10.00000   UPR_____0103
  17653.   13825.  725.0000    10.00000   UPR_____0104
  13568.   11442.
 stream
*   x       y     head      width      label
  12206.   10080.  705.7000    10.00000   LPR_____0101
  10504.    7018.  693.7000    10.00000   LPR_____0102
   7100.    4974.  681.6000    10.00000   LPR_____0103
   3696.    3273.
 stream  5000000.
*   x       y     head      width      label
 resistance  5.000000
 depth  15.00000
  26033.   37158.  704.8000    50.00000   LFC_____0101
  24980.   36584.  704.5000    50.00000   LFC_____0102
  24119.   35723.  704.2000    50.00000   LFC_____0103
  22971.   36105.  703.8000    50.00000   LFC_____0104
  21632.   35436.  703.3000    50.00000   LFC_____0105
  21440.   34288.  703.0000    50.00000   LFC_____0106
  20579.   33522.  702.6000    50.00000   LFC_____0107
  19814.   32375.  702.3000    50.00000   LFC_____0108
  18666.   31896.  701.8000    50.00000   LFC_____0109
  17327.   31417.  701.3000    50.00000   LFC_____0110
  16178.   30748.  700.9000    50.00000   LFC_____0111
  15222.   29217.  700.2000    50.00000   LFC_____0112
  14265.   28069.  699.5000    50.00000   LFC_____0113
  12734.   26346.  698.8000    50.00000   LFC_____0114
  11969.   24911.  698.5000    50.00000   LFC_____0115
  11012.   23955.  698.0000    50.00000   LFC_____0116
  10916.   22042.  697.5000    50.00000   LFC_____0117
   9768.   20989.  697.1000    50.00000   LFC_____0118
   8237.   20797.  696.6000    50.00000   LFC_____0119
   7185.   20033.  696.1000    50.00000   LFC_____0120
   5941.   19363.  695.8000    50.00000   LFC_____0121
   5272.   18502.  695.5000    50.00000   LFC_____0122
   4936.   17475.  695.1000    50.00000   LFC_____0123
   4000.   17392.  695.0000    50.00000   LFC_____0124
   3235.   17902.  694.2000    50.00000   LFC_____0125
```

```
  2512.   18412.  693.5000     50.00000   LFC_____0126
  2002.   18412.  692.9000     50.00000   LFC_____0127
  1491.   17944.  692.2000     50.00000   LFC_____0128
  1194.   17475.  691.9000     50.00000   LFC_____0129
   981.   16881.  691.6000     50.00000   LFC_____0130
  1151.   16370.  691.2000     50.00000   LFC_____0131
  1151.   15817.  690.8000     50.00000   LFC_____0132
  1151.   15307.  690.2000     50.00000   LFC_____0133
  1236.   14670.  689.6000     50.00000   LFC_____0134
  1619.   14158.  688.6000     50.00000   LFC_____0135
  1959.   13691.  687.9000     50.00000   LFC_____0136
  2044.   13223.  687.2000     50.00000   LFC_____0137
  1789.   12713.  686.5000     50.00000   LFC_____0138
  1619.   12160.  685.7000     50.00000   LFC_____0139
  1406.   11650.  684.2000     50.00000   LFC_____0140
   769.   11480.  682.2000     50.00000   LFC_____0141
   131.   11480.  680.6000     50.00000   LFC_____0142
  -422.   11480.  679.9000     50.00000   LFC_____0143
 -1060.   11437.  679.2000     50.00000   LFC_____0144
 -1655.   11437.
stream
*   x       y     head      width      label
 -7902.   51971.  793.3000     10.00000   CC_____B0101
 -4574.   50004.  780.2000     10.00000   CC_____B0102
 -2455.   46978.  769.2000     10.00000   CC_____B0103
  -337.   44104.  760.1000     10.00000   CC_____B0104
 -2304.   41532.  753.2000     10.00000   CC_____B0105
 -3968.   38354.  745.0000     10.00000   CC_____B0106
 -4574.   35328.  736.6000     10.00000   CC_____B0107
 -6994.   34117.  727.3000     10.00000   CC_____B0108
 -8205.   31243.  716.6000     10.00000   CC_____B0109
 -6389.   27915.  705.6000     10.00000   CC_____B0110
 -5633.   25039.  698.0000     10.00000   CC_____B0111
 -3363.   25190.
stream 10000000.
*   x       y     head      width      label
resistance  1.000000
  41900.   88659.  729.5000     50.00000   UWR_____0101
  36915.   80020.  725.1000     50.00000   UWR_____0102
  30934.   73042.  722.6000     50.00000   UWR_____0103
  29605.   65731.  720.8000     50.00000   UWR_____0104
  25950.   60083.  717.6000     50.00000   UWR_____0105
  19969.   57757.  713.7000     50.00000   UWR_____0106
  16978.   52772.  710.8000     50.00000   UWR_____0107
  12658.   51443.  707.2000     50.00000   UWR_____0108
  12326.   45793.  703.8000     50.00000   UWR_____0109
   8339.   46126.  701.2000     50.00000   UWR_____0110
   5348.   41474.  698.2000     50.00000   UWR_____0111
   3354.   37819.  695.3000     50.00000   UWR_____0112
    364.   36491.  692.7000     50.00000   UWR_____0113
    687.   33213.  690.6000     50.00000   UWR_____0114
    244.   30849.
stream
*   x       y     head      width      label
```

```
resistance  10.00000
   244.   30849.  689.6000     200.0000   UWR_____0201
 -1434.   30021.  689.1000     200.0000   UWR_____0202
 -3206.   30119.  688.8000     200.0000   UWR_____0203
 -3600.   29135.  688.5000     200.0000   UWR_____0204
 -2812.   27954.  688.3000     200.0000   UWR_____0205
 -2517.   26870.  688.0000     200.0000   UWR_____0206
 -2418.   25787.  687.7000     200.0000   UWR_____0207
 -2812.   24508.  687.4000     200.0000   UWR_____0208
 -2825.   23645.  687.3000     200.0000   UWR_____0209
 -3131.   23031.  687.2000     200.0000   UWR_____0210
 -3482.   22288.  687.0000     200.0000   UWR_____0211
 -4007.   21543.  686.7000     200.0000   UWR_____0212
 -4488.   20800.  686.6000     200.0000   UWR_____0213
 -4575.   20056.  686.5000     200.0000   UWR_____0214
 -4313.   19180.  686.2000     200.0000   UWR_____0215
 -4050.   18436.  686.0000     200.0000   UWR_____0216
 -4138.   17867.  685.9000     200.0000   UWR_____0217
 -4488.   17298.  685.8000     200.0000   UWR_____0218
 -5013.   16862.  685.6000     200.0000   UWR_____0219
 -5101.   16073.  685.4000     200.0000   UWR_____0220
 -4838.   15503.  685.3000     200.0000   UWR_____0221
 -4532.   15110.  685.2000     200.0000   UWR_____0222
 -4269.   14716.  685.1000     200.0000   UWR_____0223
 -3700.   14147.
stream
*   x       y     head      width      label
 -3306.   13909.  680.0000     200.0000   MWR_____0101
 -2694.   13602.  679.5000     200.0000   MWR_____0102
 -2037.   13471.  679.3000     200.0000   MWR_____0103
 -1556.   13253.  679.1000     200.0000   MWR_____0104
 -1334.   13076.  678.9000     200.0000   MWR_____0105
 -1296.   12823.  678.8000     200.0000   MWR_____0106
 -1296.   12377.  678.7000     200.0000   MWR_____0107
 -1296.   12045.  678.7000     200.0000   MWR_____0108
 -1393.   11813.  678.5000     200.0000   MWR_____0109
 -1626.   11657.  678.4000     200.0000   MWR_____0110
 -1899.   11461.  678.3000     200.0000   MWR_____0111
 -2112.   11033.  678.1000     200.0000   MWR_____0112
 -2015.   10489.  677.9000     200.0000   MWR_____0113
 -1840.   10003.  677.7000     200.0000   MWR_____0114
 -1568.    9575.  677.5000     200.0000   MWR_____0115
 -1334.    9147.  677.3000     200.0000   MWR_____0116
 -1004.    8622.  677.0000     200.0000   MWR_____0117
  -498.    8117.  676.7000     200.0000   MWR_____0118
   124.    7746.  676.4000     200.0000   MWR_____0119
  1078.    7513.  676.0000     200.0000   MWR_____0120
  1797.    7280.  675.7000     200.0000   MWR_____0121
  2381.    6877.  675.4000     200.0000   MWR_____0122
  2751.    6176.  675.1000     200.0000   MWR_____0123
  2634.    5048.
stream
end
*   x       y     head      width      label
```

```
  2459.   4363.  669.0000     200.0000   LWR_____0101
  2311.   1261.  666.6000     200.0000   LWR_____0102
  3345.  -2431.  664.6000     200.0000   LWR_____0103
  2902.  -5974.  663.6000     50.00000   LWR_____0104
  1277.  -7600.  662.7000     200.0000   LWR_____0105
 -1824.  -8191.  661.9000     50.00000   LWR_____0106
 -2415. -10848.  661.1000     200.0000   LWR_____0107
 -5221. -13802.  659.5000     50.00000   LWR_____0108
 -8174. -16017.  657.5000     50.00000   LWR_____0109
-11128. -19414.  655.8000     50.00000   LWR_____0110
-11276. -22959.  653.6000     50.00000   LWR_____0111
-12162. -27833.  650.8000     50.00000   LWR_____0112
-14525. -29604.  648.6000     50.00000   LWR_____0113
-14377. -33592.  646.2000     50.00000   LWR_____0114
-15411. -39352.
stream
*   x       y     head       width      label
 -19692.  37946.  773.2000     10.00000   LEC_____0101
 -18215.  34106.  755.6000     10.00000   LEC_____0102
 -15409.  30708.  741.4000     10.00000   LEC_____0103
 -13489.  27016.  732.2000     10.00000   LEC_____0104
 -11569.  22437.  723.6000     10.00000   LEC_____0105
 -12898.  17711.  716.1000     10.00000   LEC_____0106
 -13046.  13133.  709.1000     10.00000   LEC_____0107
 -13194.  10179.  700.8000     10.00000   LEC_____0108
 -10830.   7226.  690.6000     10.00000   LEC_____0109
  -8467.   4715.
stream
*   x       y     head       width      label
  29000.  -4047.  780.3000     10.00000   LCWRT____0101
  25671.  -7375.  768.1000     10.00000   LCWRT____0102
  24158. -10855.  755.9000     10.00000   LCWRT____0103
  23856. -14788.  741.5000     10.00000   LCWRT____0104
  20224. -15999.  727.9000     10.00000   LCWRT____0105
  16593. -17360.  712.0000     10.00000   LCWRT____0106
  10995. -18571.
stream
end
*   x       y     head       width      label
  10390. -18420.  696.0000     10.00000   LCWRT____0201
   7213. -17209.  686.4000     10.00000   LCWRT____0202
   4792. -16301.  679.1000     10.00000   LCWRT____0203
resistance  2.500000
   1010. -16453.  671.1000     200.0000   LCWRT____0204
  -2319. -14486.  666.4000     200.0000   LCWRT____0205
  -4588. -14486.
stream
*   x       y     head       width      label
resistance  1.000000
 -13950.  -8131.  697.1000     10.00000   D01453___0101
 -14101. -11005.  688.1000     10.00000   D01453___0102
 -14555. -13427.  679.9000     10.00000   D01453___0103
 -15160. -16604.  672.0000     10.00000   D01453___0104
 -15009. -19176.  665.7000     10.00000   D01453___0105
```

```
 -13496.  -21143.  656.8000     10.00000   D01453___0106
 -14404.  -22806.  650.8000     10.00000   D01453___0107
 -12739.  -24773.
stream
*   x        y     head       width       label
resistance  10.00000
  36035.   11783.  785.3000     10.00000   PR_______0101
  31950.   10080.  771.1000     10.00000   PR_______0102
  25823.    7357.  752.0000     10.00000   PR_______0103
  20716.    3273.  728.3000     10.00000   PR_______0104
  15951.     208.  708.0000     10.00000   PR_______0105
  11185.   -2854.  690.0000     10.00000   PR_______0106
   7781.   -6599.  673.9000     10.00000   PR_______0107
   2334.   -7621.
stream
end
*   x        y     head       width       label
  28716.   -1324.  777.2000     10.00000   BEANCR___0101
  25993.   -3138.  765.0000     10.00000   BEANCR___0102
  23421.   -4198.  754.1000     10.00000   BEANCR___0103
  21000.   -5710.  745.0000     10.00000   BEANCR___0104
  18730.   -6770.  733.7000     10.00000   BEANCR___0105
  15402.   -6770.  717.6000     10.00000   BEANCR___0106
  12225.   -7072.  703.2000     10.00000   BEANCR___0107
  10258.   -5105.
stream
end
*   x        y     head       width       label
  66078.   32746.  831.2000     10.00000   IC_______0101
  58249.   30364.  820.2000     10.00000   IC_______0102
  57908.   37513.  805.7000     10.00000   IC_______0103
  59270.   45001.  788.5000     10.00000   IC_______0104
  59270.   50788.  776.4000     10.00000   IC_______0105
  54939.   48859.  760.1000     10.00000   IC_______0106
  50552.   49768.
stream
end
*   x        y     head       width       label
  57916.   20464.  823.7000     10.00000   GCBCT____0101
  56857.   15622.  819.9000     10.00000   GCBCT____0102
  56252.    9116.  813.0000     10.00000   GCBCT____0103
  56555.    4275.  802.6000     10.00000   GCBCT____0104
  59581.   -4198.
stream
*   x        y     head       width       label
resistance  20.00000
  -8262.  103063.  871.8000     20.00000   LECB_____0101
 -12092.   98468.  861.7000     20.00000   LECB_____0102
 -15155.   93872.  852.3000     20.00000   LECB_____0103
 -16688.   88509.  840.8000     20.00000   LECB_____0104
 -19751.   82383.  828.4000     20.00000   LECB_____0105
 -22049.   75488.
stream
*   x        y     head       width       label
```

```
resistance  5.000000
 -49113.   80929.  908.0000     10.00000   FC_____A0101
 -43326.   77865.  891.7000     10.00000   FC_____A0102
 -38560.   74459.  877.2000     10.00000   FC_____A0103
 -39241.   68333.  862.8000     10.00000   FC_____A0104
 -42305.   65268.  848.2000     10.00000   FC_____A0105
 -38560.   60503.  827.5000     10.00000   FC_____A0106
 -38560.   54716.  802.8000     10.00000   FC_____A0107
 -35156.   49609.
head
* x1      y1      x2      y2      head      width      label
resistance 0.0000000
depth 0.0000000
 -33093.  175185. -38539.  170761.  906.1000     10.000 D01393___0101
 -38539.  170761. -46369.  169399.  897.0000     10.000 D01393___0102
 -46369.  169399. -54879.  165654.  886.5000     10.000 D01393___0103
 -54879.  165654. -64070.  159527.  874.4000     10.000 D01393___0104
 -64070.  159527. -71559.  154760.  864.9000     10.000 D01393___0105
 -71559.  154760. -80750.  150676.  856.9000     10.000 D01393___0106
 -80750.  150676. -90281.  148633.  847.6000     10.000 D01393___0107
 -90281.  148633. -100153.  145910.  836.3000     10.000 D01393___0108
-100153.  145910. -122280.  142165.  812.7000     10.000 D01393___0109
-122280.  142165. -148151.  142165.  780.2000     10.000 D01393___0110
resistance  10.00000
depth  10.00000
 -55900.  110168. -61687.  114933.  936.3000     10.000 D00984___0101
 -61687.  114933. -68835.  117997.  932.1000     10.000 D00984___0102
 -68835.  117997. -67134.  126847.  925.8000     10.000 D00984___0103
 -67134.  126847. -65772.  133655.  917.4000     10.000 D00984___0104
 -65772.  133655. -71218.  137400.  906.5000     10.000 D00984___0105
 -71218.  137400. -76325.  140804.  894.5000     10.000 D00984___0106
 -76325.  140804. -79729.  145571.  879.6000     10.000 D00984___0107
 -79729.  145571. -85175.  148975.  859.8000     10.000 D00984___0108
 -38539.  135018. -42284.  138081.  939.2000     10.000 D00922___0101
 -42284.  138081. -48071.  140804.  929.7000     10.000 D00922___0102
 -48071.  140804. -54538.  141826.  919.8000     10.000 D00922___0103
 -54538.  141826. -56921.  145230.  909.8000     10.000 D00922___0104
 -56921.  145230. -62708.  150336.  896.2000     10.000 D00922___0105
 -62708.  150336. -66453.  156804.  878.3000     10.000 D00922___0106
 -23902.  147953. -27646.  151017.  935.2000     10.000 D01136___0101
 -27646.  151017. -33774.  153399.  923.1000     10.000 D01136___0102
 -33774.  153399. -37858.  157485.  914.2000     10.000 D01136___0103
 -37858.  157485. -42965.  161228.  907.4000     10.000 D01136___0104
 -42965.  161228. -47730.  163612.  899.3000     10.000 D01136___0105
 -47730.  163612. -49092.  167016.  892.9000     10.000 D01136___0106
 -68835.   96211. -73261.  103019.  934.1000     10.000 D02194___0101
 -73261.  103019. -79729.  109826.  922.7000     10.000 D02194___0102
 -79729.  109826. -88239.  113232.  912.2000     10.000 D02194___0103
 -88239.  113232. -90962.  119698.  898.3000     10.000 D02194___0104
 -90962.  119698. -96068.  126847.  880.2000     10.000 D02194___0105
 -96068.  126847. -104919.  130251.  862.7000     10.000 D02194___0106
-104919.  130251. -113770.  132293.  842.8000     10.000 D02194___0107
-113770.  132293. -118876.  140804.  815.6000     10.000 D02194___0108
resistance 0.0000000
```

```
depth 0.0000000
-101855.   79871. -110706.   72041.  918.5000     10.000 D00460___0101
-110706.   72041. -116833.   64553.  913.4000     10.000 D00460___0102
-116833.   64553. -122280.   58426.  906.4000     10.000 D00460___0103
-122280.   58426. -129428.   50979.  890.5000     10.000 D00460___0104
-129428.   50979. -135215.   40767.  865.6000     10.000 D00460___0105
-135215.   40767. -140321.   29193.  836.4000     10.000 D00460___0106
-140321.   29193. -156661.   25108.  807.0000     10.000 D00460___0107
-110366.   95573. -121939.   82637.  914.6000     10.000 D00387___0101
-121939.   82637. -151555.   72765.  876.3000     10.000 D00387___0102
-120281.  -14017. -124025.  -33422.  801.2000     10.000 D01123___0101
-124025.  -33422. -130834.  -51464.  761.5000     10.000 D01123___0102
-130834.  -51464. -131855.  -73931.  740.5000     10.000 D01123___0103
-131855.  -73931. -143429.  -84825.  724.8000     10.000 D01123___0104
 -93047.    3684.  -90324.   -6188.  815.7000    10.000 WFWLC____0101
 -90324.   -6188.  -86579.  -13678.  783.0000     10.000 WFWLC____0102
 -86579.  -13678.  -78409.  -18784.  751.7000     10.000 WFWLC____0103
 -78409.  -18784.  -70920.  -31719.  720.0000     10.000 WFWLC____0104
 -70920.  -31719.  -61728.  -41932.  685.7000     10.000 WFWLC____0105
resistance 25.00000
depth 10.00000
  54655.   57754.   53350.   54563.  757.8000     10.000 UFC_____0101
  53350.   54563.   50668.   51881.  752.8000     10.000 UFC_____0102
  50668.   51881.   49314.   47626.  748.2000     10.000 UFC_____0103
  49314.   47626.   43964.   45757.  743.6000     10.000 UFC_____0104
  43964.   45757.   38549.   42855.  738.5000     10.000 UFC_____0105
  38549.   42855.   32360.   42276.  733.7000     10.000 UFC_____0106
  32360.   42276.   30362.   40857.  730.4000     10.000 UFC_____0107
  30362.   40857.   28943.   39117.  728.4000     10.000 UFC_____0108
  28943.   39117.   27525.   38279.  726.5000     10.000 UFC_____0109
resistance 5.000000
  82163.   33492.   73993.   21747.  836.3000     10.000 BC_____B0101
  73993.   21747.   66844.   11535.  823.6000     10.000 BC_____B0102
  66844.   11535.   61227.    -720.  808.7000     10.000 BC_____B0103
  61227.    -720.   61738.  -15018.  787.5000     10.000 BC_____B0104
  61738.  -15018.   63270.  -28805.  767.3000     10.000 BC_____B0105
  63270.  -28805.   69908.  -47698.  751.0000     10.000 BC_____B0106
 169481.   72811.  161311.   63108.  984.0000     10.000 SC_____A0101
 161311.   63108.  148035.   71789.  950.0000     10.000 SC_____A0102
 148035.   71789.  135779.   65662.  916.7000     10.000 SC_____A0103
 135779.   65662.  123524.   59533.  893.6000     10.000 SC_____A0104
 123524.   59533.  108205.   56981.  870.2000     10.000 SC_____A0105
 108205.   56981.  102588.   38087.  851.4000     10.000 SC_____A0106
resistance 1.000000
 100035.   35534.   93397.   14088.  829.0000     10.000 SC_____A0201
  93397.   14088.   85738.   -2762.  807.3000     10.000 SC_____A0202
  85738.   -2762.   78589.  -26763.  784.5000     10.000 SC_____A0203
  78589.  -26763.   73482.  -47188.  756.6000     10.000 SC_____A0204
  73482.  -47188.   69397.  -68124.  730.2000     10.000 SC_____A0205
  69397.  -68124.   61738.  -88039.  710.4000     10.000 SC_____A0206
resistance 0.0000000
depth 0.0000000
 124035.   39619.  119950.    8471.  868.5000     10.000 D01525___0101
 119950.    8471.  114844.  -21145.  833.6000     10.000 D01525___0102
```

```
 114844.  -21145.  101056.  -53826.  791.7000     10.000 D01525___0103
 101056.  -53826.  91354.  -81910.  745.0000     10.000 D01525___0104
 184800.  16130.  140375.  -16040.  854.9000     0.000 D01871___0101
 140375.  -16040.  114844.  -81400.  782.1000     0.000 D01871___0102
 188885.  119086.  175609.  104277.  928.8000     0.000 FC_____0101
 175609.  104277.  157226.  98660.  896.8000     0.000 FC_____0102
 157226.  98660.  139864.  100703.  871.4000     0.000 FC_____0103
 139269.  100150.  126674.  94362.  854.4000     0.000 FC_____0201
 126674.  94362.  118844.  91298.  834.4000     0.000 FC_____0202
 118844.  91298.  111695.  84149.  813.6000     0.000 FC_____0203
 111695.  84149.  101142.  80065.  804.8000     0.000 FC_____0204
 101142.  80065.  83780.  74958.  794.2000     0.000 FC_____0205
resistance  100.0000
depth  10.00000
 79015.  73257.  70504.  72235.  784.1000    1000.000 D00548___0101
 70504.  72235.  67100.  64066.  783.5000    1000.000 D00548___0102
 67100.  64066.  57568.  58618.  782.6000    1000.000 D00548___0103
resistance  5.000000
 104207.  128073.  92973.  120924.  830.9000     10.000 D02973___0101
 92973.  120924.  86505.  116158.  816.5000     10.000 D02973___0102
 86505.  116158.  75611.  118201.  801.3000     10.000 D02973___0103
 75611.  118201.  69483.  112074.  782.1000     10.000 D02973___0104
 69483.  112074.  60632.  105264.  767.2000     10.000 D02973___0105
 60632.  105264.  55185.  103222.  758.1000     10.000 D02973___0106
 55185.  103222.  47015.  100499.  747.9000     10.000 D02973___0107
 50079.  156670.  48377.  145095.  815.7000     10.000 D00953___0101
 46334.  145095.  39866.  134201.  807.0000     10.000 D02343___0101
 39866.  134201.  34079.  121604.  807.0000     10.000 D02343___0102
 34079.  121604.  36462.  118201.  807.0000     10.000 D02343___0103
resistance  10.00000
  377.  149180.  6164.  153264.  900.7000     10.000 D00830___0101
 6164.  153264.  9568.  158371.  888.5000     10.000 D00830___0102
 9568.  158371.  16036.  161775.  879.3000     10.000 D00830___0103
 16036.  161775.  23185.  162797.  870.1000     10.000 D00830___0104
 23185.  162797.  27951.  166542.  861.3000     10.000 D00830___0105
 27951.  166542.  33398.  163138.  852.8000     10.000 D00830___0106
 33398.  163138.  36121.  156328.  842.4000     10.000 D00830___0107
 36121.  156328.  38845.  151903.  831.1000     10.000 D00830___0108
 38845.  151903.  40887.  146115.  818.7000     10.000 D00830___0109
resistance  20.00000
 20632.  138002.  22599.  134523.  852.3000     10.000 D02608___0101
 22599.  134523.  26079.  132403.  841.3000     10.000 D02608___0102
 26079.  132403.  26835.  127864.  826.6000     10.000 D02608___0103
 26835.  127864.  28953.  126503.  813.7000     10.000 D02608___0104
resistance  10.00000
 18703.  113660.  18476.  108439.  861.8000     10.000 D01274___0101
 18476.  108439.  15979.  102538.  849.0000     10.000 D01274___0102
 15979.  102538.  15525.  95502.  832.1000     10.000 D01274___0103
 15525.  95502.  15752.  88467.  810.3000     10.000 D01274___0104
 15752.  88467.  21426.  83021.  789.6000     10.000 D01274___0105
 21426.  83021.  24604.  76892.  763.2000     10.000 D01274___0106
 24604.  76892.  30050.  74623.  736.1000     10.000 D01274___0107
resistance  0.0000000
depth  0.0000000
```

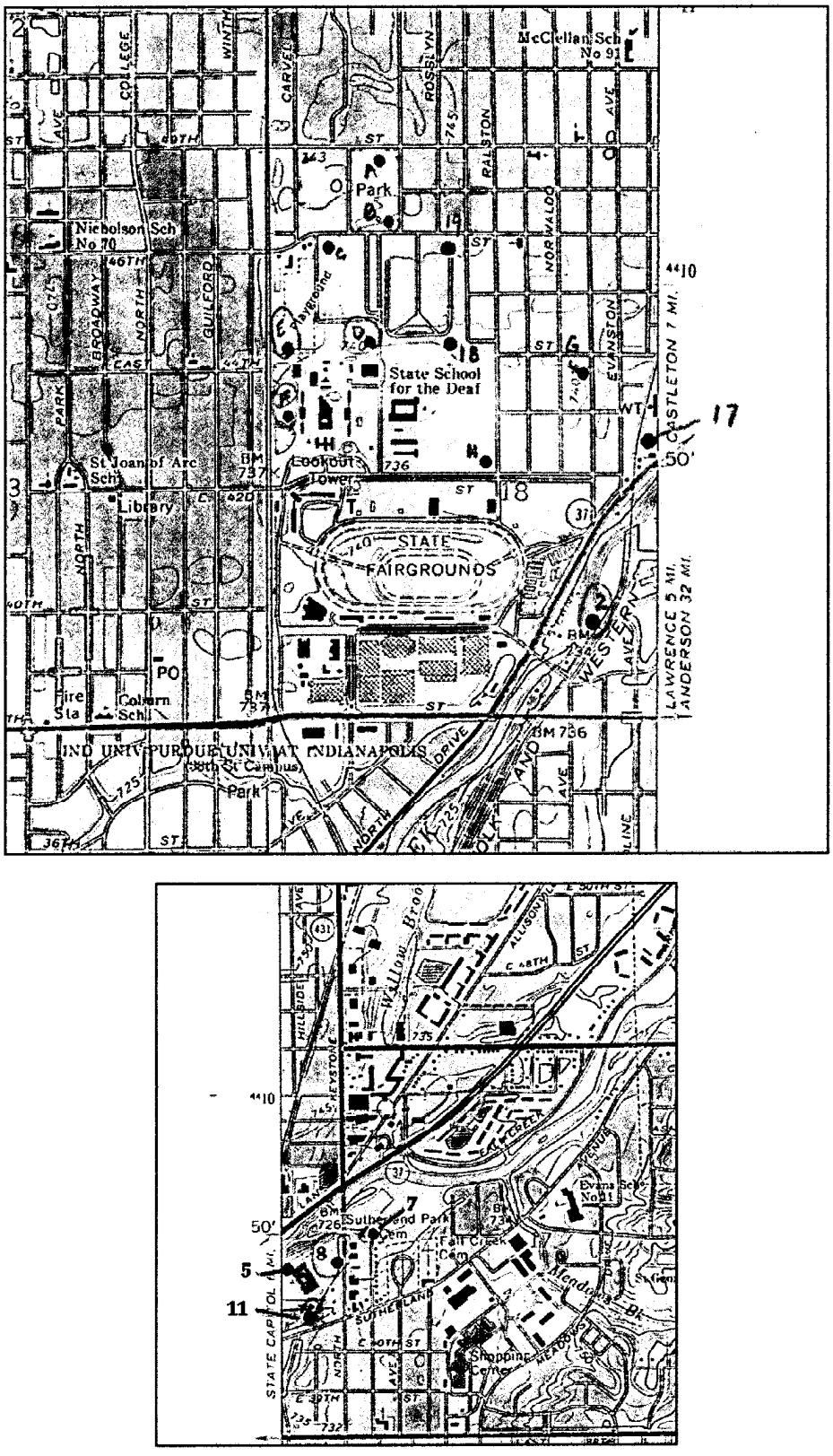
```
 -97881.   55573. -104775.   43316.  928.7000     0.000 D00669__A0101
-104775.   43316. -113967.   38722.  912.2000     0.000 D00669__A0102
-113967.   38722. -133882.   31061.  870.1000     0.000 D00669__A0103
   6292.  169704.   28505.  184256.  874.0000     0.000 D01116___0101
 109774.  172910.   97519.  154527.  804.9000     0.000 PCD_____A0101
  97519.  154527.   84499.  146102.  792.3000     0.000 PCD_____A0102
resistance  5.000000
depth  10.00000
  31402.  -36553.   27997.  -38595.  809.4000    10.000 PRC_____0101
  27997.  -38595.   23912.  -39050.  795.6000    10.000 PRC_____0102
  23912.  -39050.   20280.  -40866.  779.4000    10.000 PRC_____0103
  20280.  -40866.   18465.  -47447.  759.2000    10.000 PRC_____0104
  18465.  -47447.   15060.  -47221.  743.5000    10.000 PRC_____0105
  15060.  -47221.   12563.  -43589.  733.2000    10.000 PRC_____0106
  12563.  -43589.    8024.  -45859.  719.4000    10.000 PRC_____0107
   8024.  -45859.    3031.  -45405.  699.1000    10.000 PRC_____0108
   3031.  -45405.    -827.  -42682.  680.0000    10.000 PRC_____0109
   -827.  -42682.   -6048.  -40185.  664.9000    10.000 PRC_____0110
  -6048.  -40185.  -11268.  -44724.  649.4000    10.000 PRC_____0111
 -26701.  -34056.  -23524.  -38595.  691.8000    10.000 D01769___0101
 -23524.  -38595.  -20573.  -42001.  675.3000    10.000 D01769___0102
 -20573.  -42001.  -18985.  -48128.  659.2000    10.000 D01769___0103
 -18985.  -48128.  -21708.  -52440.  646.3000    10.000 D01769___0104
 -21708.  -52440.  -21481.  -56525.  636.0000    10.000 D01769___0105
resistance  0.0000000
depth  0.0000000
149578.  130668.  128271.  137397.  826.9000     0.000 LUWR_____0102
 128271.  137397.  100235.  140761.  807.2000     0.000 LUWR_____0103
 100235.  140761.   73320.  139641.  787.2000     0.000 LUWR_____0104
  73320.  139641.   57620.  131790.  771.7000     0.000 LUWR_____0105
  57620.  131790.   48649.  118332.  755.7000     0.000 LUWR_____0106
  48649.  118332.   43041.  104876.  744.0000     0.000 LUWR_____0107
resistance  1.000000
depth  10.00000
 -15559.  -40141.  -13786.  -46345.  644.2000    50.000 LWR_____0201
 -13786.  -46345.  -14968.  -52547.  639.5000    50.000 LWR_____0202
 -14968.  -52547.  -19398.  -56830.  634.6000    50.000 LWR_____0203
 -19398.  -56830.  -19989.  -63918.  629.8000    50.000 LWR_____0204
 -19989.  -63918.  -24420.  -68644.  626.5000    50.000 LWR_____0205
 -24420.  -68644.  -31952.  -76620.  620.8000    50.000 LWR_____0206
 -31952.  -76620.  -38893.  -86513.  614.7000    50.000 LWR_____0207
resistance  0.0000000
depth  0.0000000
  43150.  104553.   46005.   98744.  738.8000     0.000 UWR_____0201
  46005.   98744.   42165.   88997.  734.6000     0.000 UWR_____0202
quit
map
plot GRID_WIN.MAP
quit
switch
error con
message con
echo off
input con
```

Appendix C

IWC-Riverside & Fall Creek
WHPA Delineation Report

Production Well Locations
and IDNR High Capacity Well Data

Locations of proposed (red dots) and existing (blue dots) community water supply wells included in the Riverside well field modeling analysis. See Table 3 in the report (p. 31) for modeled pumping rates.



Locations of proposed (red dots) and existing (blue dots) community water supply wells included in the Fall Creek well field modeling analysis. See Table 3 in the report (p. 31) for modeled pumping rates.

1994 high capacity wells
IDNR records

X	Y	Q	diam	REGNO	WELLNO
9186	2707	1628	4SG	00022	1
9678	3199	2106	4SG	00022	2
29364	16322	18354	12SG	00069	EAST1A
29035	16650	38435	12SG	00069	EAST2A
29446	16568	38638	12SG	00069	EAST3A
15502	17881	98458	12SG	00070	WEST 1
15338	17881	59026	12SG	00070	WEST 2
-19193	54216	1780	12SG	00240	1
20095	29856	1505	12SG	00430	1
20095	29610	674	26SG	00430	2
20423	29692	385	4SG	00430	3
26821	64469	27769	12SG	00463	1061-1
29281	64304	27769	12SG	00463	1062-1
8038	20505	80956	12SG	00519	1
8366	20866	43379	12SG	00519	2
8366	21063	43730	12SG	00519	3
7464	20505	48125	16SG	00519	4
7989	19357	0	6SG	00519	5
20423	25689	0	6SG	00586	1
20423	25476	3565	6SG	00586	2
-30840	-27559	1665	10SG	00613	1
33071	53806	22858	13SG	00647	1050-1
20997	57415	36306	13SG	00648	1053-1
25016	59137	34940	13SG	00649	1057-1
25853	62434	34940	13SG	00650	1056-1
21407	59629	23239	13SG	00651	1053-2
17799	59793	15236	12SG	00651	1060-1
43799	57251	3636	12SG	00745	1
43307	55692	286	8SG	00745	2
43717	57251	1640	8SG	00745	3
44127	-22211	7207	12SG	00838	5
52247	38058	379	4SG	00916	2
52822	37402	379	4SG	00916	3
20259	35351	3077	6SG	00944	1
20013	34449	2272	36SG	00944	2
36335	51755	5219	6SG	01002	1
7792	29528	387	5SD	01180	1MAINE
7956	29528	0	5SD	01180	2MAINW
7710	29364	154	5SD	01180	3OLPC
7874	29364	22	36SD	01180	4FIRE
8038	29364	308	6SD	01180	5WOOD
7546	29364	57	5SD	01180	6
58317	2543	7703	12SG	01273	1
58563	2461	7556	12SG	01273	2
-14436	26903	54	4SG	01331	1
-14436	27067	54	4SG	01331	2
-11975	-3035	7691	16SG	01555	1

1994 high capacity wells
IDNR records

X	Y	Q	diam	REGNO	WELLNO
-18783	61434	3846	12SG	01556	1
-21736	60942	4285	12SG	01556	2
-19275	59137	3846	12SG	01556	3
-8612	-27969	5311	12SG	01572	1
21654	48474	741	6SG	01627	1
32890	65371	0	12SG	01641	3
33054	65371	42563	12SG	01641	5
-13780	1804	0	12SG	01878	3
-13944	1804	23147	12SG	01878	4
-14108	1804	9779	12SG	01878	5
23146	40108	791	6SG	01993	2
23474	40108	3164	6SG	01993	3
656	44373	3571	12SG	02008	1
820	44291	0	12SG	02008	2
-22064	31168	8	5SG	02082	4
-22638	31168	7	5SG	02082	5
31496	53232	7032	12SG	02349	1
14600	21572	487	8SG	02376	1
-26657	17142	6325	12SS	02385	1
-27805	17963	3191	12SS	02386	2
32152	28543	1780	4LS	02414	1
32070	28297	0	4LS	02414	2
31250	29199	0	4LS	02414	3
31086	36827	89	4OT	02429	1
31496	36991	100	4OT	02429	2
31168	36991	0	6OT	02429	3
5577	21900	963	4SG	02453	1
3773	22228	242	4SG	02453	2
3527	22310	575	4SG	02453	3
2707	21900	563	4SG	02453	4
13287	-22228	0	8SD	02500	1
13205	-22228	7448	12SG	02500	2
26165	19439	15448	8SG	02599	1
25591	19439	11309	8SG	02599	2
-31841	-6726	9372	12SG	02722	1
-31841	-7054	8197	8SG	02722	2
-11270	-12467	0	4SG	02742	1
-11155	-12467	4716	4SG	02742	2
22966	28707	0	16SG	02816	1
-14682	-25262	487	8SD	02837	8
15190	13123	402	6SG	02838	1
15912	12139	173	6SG	02838	2
3609	44619	########	12SG	02943	1
28707	49377	17214	12SG	03060	1
32890	47490	2674	6SG	03060	1A
28625	44537	2197	6SG	03060	2A
33875	42897	2197	12SG	03060	3

1994 high capacity wells
IDNR records

X	Y	Q	diam	REGNO	WELLNO
-20587	30840	3270	6SG	03183	1
-21572	30840	0	6SG	03183	2
16503	47080	16884	12SG	03280	1
13058	46555	38192	12SG	03280	2
9022	35105	30765	12SG	03281	3
1936	49295	21367	12SG	03303	1064-1
12303	12877	717	6SG	03307	1
13041	52657	10621	12SG	03345	1
13041	51099	2417	12SG	03345	2
13025	49836	844	6SG	03346	2
13451	39206	29007	12SG	03416	1
-11401	16076	2469	5SG	03489	1
-11319	16568	619	5SG	03489	3
-11319	15994	3442	5SG	03489	B
62500	55774	580	6SG	03490	1
62500	56020	0	4SG	03490	2
62500	55938	993	6SG	03490	3
37894	7382	1037	8SG	03494	1
39124	7136	1400	8SG	03494	2
39452	9022	6995	8SG	03494	3
39616	7300	337	6SG	03494	4
39124	7300	541	4SG	03494	5
15502	18291	597	6SG	03716	1
20259	62746	2857	12SG	03717	1
9186	53478	37467	12SG	03735	1
34531	13287	694	4SG	03737	1
34531	12959	694	4SG	03737	2
34203	12467	770	4SG	03737	3
34367	12467	770	4SG	03737	4
35105	12549	129	4SG	03737	5
35351	12549	129	4SG	03737	6
35023	12959	40	2SD	03737	7
62582	51837	266	6SG	03738	1
62582	51673	279	4SG	03738	2
10663	48720	19769	12SG	03740	1
11909	52986	36149	12SG	03746	1
5988	48885	17060	12SG	03773	1
38304	41667	6043	12SG	03817	1
20341	52247	2	6SG	03878	1
20341	52264	1	4SG	03878	2
-31988	19193	14837	8SG	03881	1
15584	21572	182	4SG	03895	1
15584	21736	155	4SG	03895	2
15584	22228	361	4SG	03895	3
15748	21736	351	4SG	03895	4
-30938	-9104	0	4SG	03899	1
-31168	-9104	171	6SG	03899	2

1994 high capacity wells
IDNR records

X	Y	Q	diam	REGNO	WELLNO
-31332	-8891	949	12SG	03899	3
-2428	58153	2373	8SG	03906	1
-11401	58809	1793	8SG	03907	1
11893	54659	46990	12SG	03910	1
1804	44045	2307	12SG	03913	1
62303	37484	86	4SG	03920	1
62090	38304	72	8SG	03920	2
46342	60105	22360	12SD	03921	TF9202
18865	45030	20656	12SG	03929	1
32070	40846	9268	12SG	04031	1
24606	56348	12658	10SG	04045	1069-1

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63979	3804 N LESLEY	Thu, Feb 03, 1972

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	[illegible]		
Building Contractor			
Drilling Contractor	C A MARTIN	8831 ACTON RD	
Equipment Operator	BRICE DUNN	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 141.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:***	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 3.0 *Slot size:* 6

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for 2.0 hrs. ***Bail Test rate:*** gpm for hrs.
Drawdown: 5.0 ft. *Static water level:* 110.0 ft.

Grouting information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative
County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SW 1/4 of the SE 1/4 of Section 15 ***Topo map:*** INDIANAPOLIS EAST
Field located by: *on:*
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***
Ft W of EL: 2500 ***Ft N of SL:*** 150 ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 827.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 696.0
UTM Easting: 579340.0 ***UTM Northing:*** 4408690.0

Well Log

Top	Bottom	Formation
0.0	39.0	YEL CLAY
39.0	53.0	BRN HARDPAN
53.0	69.0	GRAY HARDPAN
69.0	78.0	BLK MUD
78.0	93.0	BRN HARDPAN
93.0	110.0	BLUE CLAY
110.0	115.0	BLK MUD
115.0	141.0	BLK S & G

Comments MC 696

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
169820		Thu, Sep 20, 1973

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MT CARMEL BAPTIST CHURCH	5502 E 36TH ST	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 135.0	***Pump setting depth:***	***Water quality:***
Casing	*Length:* 135.0	*Material:*	*Diameter:* 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 4.0 *Slot size:* .006

Well Capacity Test	*Type of test:*	*Test rate:* 10.0 gpm for hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: ft.	***Static water level:*** 100.0 ft.	

Grouting Information	***Material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: SW 1/4 of the SW 1/4 of the SE 1/4 of Section 15		*Topo map:* INDIANAPOLIS EAST	
	Field located by: MCBN		***on:*** Sun, Nov 01, 1992	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by: SJ		***on:***	
	Subdivision name:		*Lot number:*	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
	Ground elevation: 836.0	*Depth to bedrock:*	*Bedrock elevation:*	*Aquifer elevation:* 701.0
	UTM Easting: 579275.0		*UTM Northing:* 4409650.0	

Well Log	Top	Bottom	Formation
	0.0	3.0	TOP SOIL
	3.0	49.0	CLAY
	49.0	87.0	DRIFT
	87.0	124.0	CLAY
	124.0	135.0	GRAVEL

Comments MC 701:

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
169825	4TH HOUSE N 39TH ON W SIDE OF LAYMAN ST	Wed, Jan 01, 1964

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	EARL WIRT	2023 W	
Building Contractor			
Drilling Contractor	C A MARTIN	ACTON RD	
Equipment Operator	JOHNSON	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 46.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 46.0	***Material:***	***Diameter:*** 4.5
Screen	*Length:* 5.0	*Material:*	*Diameter:* 3.0 *Slot size:* 60

Well Capacity Test	***Type of test:***	***Test rate:*** 7.0 gpm for 2.0 hrs.	***Bail Test rate:*** gpm for hrs.
	Drawdown: 30.0 ft.	*Static water level:* ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Administrative	*County:* MARION		*Township:* 16N *Range:* 4E	
	Section: NW 1/4 of the SW 1/4 of the SE 1/4 of Section 15			***Topo map:*** INDIANAPOLIS EAST
	Field located by: MCBH		*on:* Sun, Nov 01, 1992	
	Courthouse location by:		***on:***	
	Location accepted w/o verification by: U		*on:* Fri, May 01, 1964	
	Subdivision name:		***Lot number:***	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
	Ground elevation: 826.0	*Depth to bedrock:*	***Bedrock elevation:***	*Aquifer elevation:* 780.0
	UTM Easting: 579220.0		***UTM Northing:*** 4408850.0	

Well Log

Top	Bottom	Formation
0.0	20.0	HARDPAN
20.0	30.0	CLAY
30.0	40.0	HARDPAN
40.0	46.0	GRAV

Comments MC 789

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63978	5451 GLENCOE	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	JOHN FOLLEY	5451 GLENCOE	
Building Contractor			
Drilling Contractor	HARLON MILLS	1726 HAMBLEN W DR INDPLS, IND	
Equipment Operator	LEONARD WARD	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 47.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 46.5	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 6.0	*Material:*	*Diameter:* 3.0 *Slot size:* 6

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 5.0 gpm for 1.0 hrs.
Drawdown: ft. *Static water level:* 18.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative *County:* MARION *Township:* 16N *Range:* 4E
Section: SE 1/4 of the NE 1/4 of the SW 1/4 of Section 13 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 820.0 Depth to bedrock: ***Bedrock elevation:*** Aquifer elevation: 782.0
UTM Easting: 579115.0 ***UTM Northing:*** 4409130.0

Well Log

Top	Bottom	Formation
0.0	14.0	SANDY CLAY
14.0	26.0	CLAY
26.0	31.0	CLAY
31.0	34.0	S & G
34.0	45.0	SANDY CLAY
45.0	47.0	S & G

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63980		Tue, Sep 12, 1961

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	G.F. DAVIS-FREDRICK BARTON	3902 HAWTHORNE LANE	
Building Contractor			
Drilling Contractor	ROBERSON OVERLEESE	350 NORTH PERKINS ST., RUSHVILLE, IND.	
Equipment Operator	WILLIAM A. PAUGH	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 258.0	***Pump setting depth:***	***Water quality:***
Casing	*Length:* 228.0	*Material:*	*Diameter:* 4.5
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test	*Type of test:*	*Test rate:* 10.0 gpm for 2.0 hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: 24.0 ft.	***Static water level:*** 140.0 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E

Section: NE 1/4 of the SW 1/4 of the SW 1/4 of Section 15 *Topo map:* INDIANAPOLIS EAST

Field located by: MCBH ***on:*** Sun, Nov 01, 1992

Courthouse location by: *on:*

Location accepted w/o verification by: ***on:***

Subdivision name: *Lot number:*

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 828.0	***Depth to bedrock:*** 228.0	*Bedrock elevation:* 600.0	***Aquifer elevation:***

UTM Easting: 576800.0 *UTM Northing:* 4408812.0

Well Log

Top	Bottom	Formation
0.0	10.0	DRIFT
10.0	44.0	BROWN GRAVELY CLAY
44.0	68.0	BROWN CLAY
68.0	80.0	GRAY CLAY
80.0	100.0	GRAY GRAVELY CLAY
100.0	121.0	BLUE GRAVELY CLAY
121.0	140.0	SAND
140.0	175.0	GRAY GRAVELY CLAY
175.0	200.0	YELLOW GRAVELY CLAY
200.0	228.0	YELLOW CLAY
228.0	258.0	LIMESTONE

Comments MC 600: SEE MAP

Record of Water Well

Indiana Department of Natural Resources

Reference Number	63991
Driving directions to well	38TH ST AND EMERSON SHOPPING CENTER NW CORNER MANHOLE TO PIT IN PARKING LOT
Date completed	Sat, Jun 15, 1968

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	[illegible]	[illegible]	
Building Contractor			
Drilling Contractor	CARLEE DRILLING	2746 E EDGEWOOD AVE	
Equipment Operator	[illegible] CARLEE	License:	

Construction Details

Well	*Use:* INDUSTRY	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 420.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 154.0	*Material:*	*Diameter:* 8.63
Screen	*Length:*	*Material:*	*Diameter:* *Slot size:*
Well Capacity Test	*Type of test:*	*Test rate:* 22.0 gpm for 22.0 hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: 26.0 ft.	*Static water level:* 101.0 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*
Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Administrative

County: MARION		*Township:* 16N *Range:* 4E	
Section: SE 1/4 of the SE 1/4 of the SE 1/4 of Section 16			*Topo map:* INDIANAPOLIS EAST
Field located by: HCK		*on:* Sat, Jun 01, 1968	
Courthouse location by:		*on:*	
Location accepted w/o verification by:		*on:*	
Subdivision name:		*Lot number:*	
Ft W of EL:	*Ft N of SL:*	*Ft E of WL:*	*Ft S of NL:*
Ground elevation: 818.0	*Depth to bedrock:* 154.0	*Bedrock elevation:* 665.0	*Aquifer elevation:*
UTM Easting: 578260.0		*UTM Northing:* 4408625.0	

Well Log

Top	Bottom	Formation
0.0	3.0	BLKTOP ROCK
3.0	22.0	YEL CLAY
22.0	62.0	GRAY CLAY
62.0	120.0	GRAY HARDPAN
120.0	122.0	SANDY SOUP
122.0	154.0	GRAY HARDPAN
154.0	418.0	LS
418.0	420.0	BLUE SHALE

Comments MC 665

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63990	1 BLK N OF 38TH ST 5 BLKS E OF SHERMAN DR	Mon, Aug 08, 1960

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	JOHN HOLLY	3238 DREXEL	
Building Contractor			
Drilling Contractor	CLAUD ROYSTON	RR 2 BOX 125 GREENWOOD, IND	
Equipment Operator	CLAUDE ROYSTON	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:***	***Pump type:***
	Depth: 46.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 43.0	***Material:***	***Diameter:*** 2.0
Screen	*Length:* 2.5	*Material:*	*Diameter:* 1.25 *Slot size:*

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for 2.0 hrs. ***Bail Test rate:*** gpm for hrs.
Drawdown: ft. *Static water level:* 16.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative
County: MARION *Township:* 16N *Range:* 4E
Section: NW 1/4 of the SW 1/4 of the SE 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 797.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 751.0
UTM Easting: 577600.0 ***UTM Northing:*** 4408925.0

Well Log

Top	Bottom	Formation
0.0	35.0	CLAY
35.0	46.0	GRAV

Comments MC 751

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63989		Mon, Jan 08, 1973

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	LARRY MATTHEW	3737 NORTH DRIVE	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W. MORRIS	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 103.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 103.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 4.0	*Material:*	*Diameter:* 4.0 *Slot size:* #6

Well Capacity Test	***Type of test:***	***Test rate:*** 10.0 gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	*Static water level:* 85.0 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: NW 1/4 of the SW 1/4 of the SE 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST

Field located by:		*on:* Sat, May 04, 1974	
Courthouse location by:		***on:***	
Location accepted w/o verification by:		*on:*	
Subdivision name:		***Lot number:***	
Ft W of EL: 2400	***Ft N of SL:*** 1300	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 802.0	*Depth to bedrock:*	***Bedrock elevation:***	*Aquifer elevation:* 699.0
UTM Easting: 577665.0		***UTM Northing:*** 4408960.0	

Well Log

Top	Bottom	Formation
0.0	3.0	TOP SOIL
3.0	78.0	CLAY
78.0	79.0	GRAVEL
79.0	96.0	CLAY
96.0	103.0	GRAVEL

Comments MC 600

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
160512	2321 E. 40TH. ST., N. SIDE	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	U.S.G.S.		
Building Contractor			
Drilling Contractor	U.S.G.S.		
Equipment Operator	SOUTHWOOD-GILLIN	License:	

Construction Details

Well	***Use:***	***Drilling method:*** OTHER	***Pump type:***
	Depth: 23.5	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 21.0	***Material:***	***Diameter:*** 23.5
Screen	*Length:* 2.5	*Material:*	*Diameter:* 1.25 *Slot size:* 50

Well Capacity Test	***Type of test:***	***Test rate:*** gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	*Static water level:* 19.63 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: NE 1/4 of the SE 1/4 of the SE 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS EAST

Field located by: MC BII *on:* Sun, Nov 01, 1992

Courthouse location by: ***on:***

Location accepted w/o verification by: *on:*

Subdivision name: ***Lot number:***

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 725.0	*Depth to bedrock:*	***Bedrock elevation:***	*Aquifer elevation:* 710.0

UTM Easting: 575050.9 ***UTM Northing:*** 4408864.0

Well Log

Top	Bottom	Formation
0.0	5.0	TOPSOIL & CLAY
5.0	10.0	SANDY CLAY
10.0	25.0	MD S & G TO CLAY

Comments MC 710.

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63988	E OF WERZATN N 35TH ST TO DREXEL 3749	Wed, Oct 01, 1969

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	[illegible]	[illegible]	
Building Contractor			
Drilling Contractor	MANFORD DEAN	841 W SUMNER AVE	
Equipment Operator	GERALD OAKLEY	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 107.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 107.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 3.0 *Slot size:* 30

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for 2.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 15.0 ft. *Static water level:* 80.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative *County:* MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SW 1/4 of the SE 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST
Field located by: *on:* Sat, May 04, 1974
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: 2400 ***Ft N of SL:*** 650 ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 801.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 694.0
UTM Easting: 577660.0 ***UTM Northing:*** 4408760.0

Well Log

Top	Bottom	Formation
0.0	27.0	GRAY CLAY
27.0	30.0	GRAV
30.0	95.0	YEL CLAY
95.0	107.0	S & G

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63987		Mon, Apr 19, 1976

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	[illegible]	[illegible]	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W. MORRIS	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 130.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:***	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 4.0 *Slot size:* #6

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 15.0 gpm for 1.0 hrs.
Drawdown: ft. *Static water level:* 73.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SE 1/4 of the SW 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: BRUNS *on:* Mon, Nov 08, 1976
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 705.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 665.0
UTM Easting: 577285.0 ***UTM Northing:*** 4408625.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOP SOIL
3.0	40.0	CLAY
40.0	123.0	OVERBURDEN
123.0	130.0	GRAVEL

Comments MC 665

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63986	PERMIT #2293 4600E	Sat, Nov 30, 1974

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	GARY MOTRS	3202 N BRYANT	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS ST	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 114.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:***	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 0.5	*Material:*	*Diameter:* 4.0 *Slot size:* .006

Well Capacity Test	***Type of test:***	***Test rate:*** 10.0 gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	*Static water level:* 90.0 ft.	

Grouting information	*Material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: NW 1/4 of the SW 1/4 of the SE 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST

Field located by: MCBH *on:* Sun, Nov 01, 1992

Courthouse location by: ***on:***

Location accepted w/o verification by: TMB *on:* Fri, Aug 22, 1975

Subdivision name: ***Lot number:***

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 901.0	*Depth to bedrock:*	***Bedrock elevation:***	*Aquifer elevation:* 687.0

UTM Easting: 577600.0 ***UTM Northing:*** 4408775.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOP SOIL
3.0	45.0	CLAY
45.0	103.0	OVERBURDEN
103.0	114.0	GRAVEL

Comments MC 687; MARION

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63985	1 SQ N OF 30 6 SQ W OF 1	Mon, Apr 24, 1961

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	GENE STARKS	3931 N	
Building Contractor			
Drilling Contractor	CLAUDE PAYTON	GREENWOOD, IND	
Equipment Operator	CLAUDE PAYTON	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** JET	***Pump type:***
	Depth: 53.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 50.0	***Material:***	***Diameter:*** 2.0
Screen	*Length:* 2.5	*Material:*	*Diameter: Slot size:* 30

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for 1.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. *Static water level:* 25.0 ft.

Grouting information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative *County:* MARION *Township:* 16N *Range:* 4E
Section: NW 1/4 of the SW 1/4 of the SE 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 800.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 749.0
UTM Easting: 577665.0 ***UTM Northing:*** 4408925.0

Well Log

Top	Bottom	Formation
0.0	25.0	CLAY
25.0	28.0	GRAV
28.0	48.0	CLAY
48.0	53.0	GRAV

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63984	3935 DREXEL	Mon, Jan 01, 1973

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner			
Building Contractor	VILLAGE MANAGEMENT CO	3939 MEADOWS DR	
Drilling Contractor	C HAMILTON	3930 E EMERSON	
Equipment Operator	C HAMILTON	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 100.0	***Pump setting depth:***	***Water quality:***
Casing	*Length:* 97.0	*Material:*	*Diameter:* 4.0
Screen	*Length:* 4.0	*Material:*	*Diameter:* 3.0 *Slot size:* .5

Well Capacity Test	*Type of test:*	*Test rate:* gpm for hrs.	*BailTest rate:* 10.0 gpm for 1.0 hrs.
	Drawdown: ft.	***Static water level:*** 76.0 ft.	

Grouting Information	***Material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Administrative				
	County: MARION		***Township:*** 16N ***Range:*** 4E	
	Section: NW 1/4 of the SW 1/4 of the SE 1/4 of Section 16			*Topo map:* INDIANAPOLIS EAST
	Field located by: MCBH		***on:*** Sun, Nov 01, 1992	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by:		***on:***	
	Subdivision name:		*Lot number:*	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
	Ground elevation: 802.0	*Depth to bedrock:*	*Bedrock elevation:*	*Aquifer elevation:* 702.0
	UTM Easting: 577665.0		*UTM Northing:* 4408890.0	

Well Log

Top	Bottom	Formation
0.0	38.0	CLAY
38.0	40.0	SAND
40.0	88.0	CLAY
88.0	100.0	S & G

Comments MC 702

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63983		Sat, Sep 13, 1975

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	HAROLD YOUNG	3836 N DREXEL	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 126.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:***	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 4.0 *Slot size:* 6

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 10.0 gpm for 1.0 hrs.
Drawdown: ft. *Static water level:* 25.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SW 1/4 of the SE 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCB11 *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 795.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 669.0
UTM Easting: 577595.0 ***UTM Northing:*** 4408695.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOPSOIL
3.0	100.0	HARD CLAY
100.0	126.0	GRAV

Comments MC 669

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*		*Date completed*
63982	1969 PII		Thu, Sep 01, 1966

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	SADIE OTT	9105 N DREXEL	(000)546-8916
Building Contractor			
Drilling Contractor			
Equipment Operator	RASH	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 105.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 62.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 4.5	*Material:*	*Diameter: Slot size:*

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 8.0 gpm for 0.5 hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative
County: MARION *Township:* 16N *Range:* 4E
Section: NW 1/4 of the SW 1/4 of the SE 1/4 of Section 16 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBII *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***

Ft W of EL:	*Ft N of SL:*	*Ft E of WL:*	*Ft S of NL:*
Ground elevation: 800.0	*Depth to bedrock:*	***Bedrock*** *elevation:*	*Aquifer elevation:* 695.0
UTM Easting: 577665.0		***UTM Northing:*** 4408890.0	

Well Log

Top	Bottom	Formation
0.0	95.0	TOP SOIL & CLAY
95.0	105.0	SAND

Comments MC 695;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63641		Sat, Dec 07, 1985

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	JOHN OLMSTEAD	3350 E 42ND ST, INDPLS	
Building Contractor	DALE SHEPPARD	E 75TH ST, INDPLS	
Drilling Contractor	HELVIE & SONS INC.	5418 LINCOLN BLVD, MARION IN	
Equipment Operator	JAMES HELVIE	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 65.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 60.0	***Material:***	***Diameter:*** 5.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 4.0 *Slot size:* 60

Well Capacity Test ***Type of test:*** PUMPING ***Test rate:*** 50.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. *Static water level:* 27.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative
County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SE 1/4 of the NE 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 770.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 705.0
UTM Easting: 576355.0 ***UTM Northing:*** 4409390.0

Well Log

Top	Bottom	Formation
0.0	30.0	CLAY
30.0	51.0	GRAV
51.0	53.0	CLAY
53.0	65.0	S&G

Comments MC 705; SEE MAP;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63995	I-70 TO KEYSTONE AVE & N TO MILLERSVILLE RD & RIGHT TO OXFORD & N E2900 6950N	Fri, Aug 12, 1983

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	GEORGE HAYES	4232 N OXFORD	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS	
Equipment Operator	JERRY OAKLEY	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 69.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 4.0 *Slot size:* #6

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 10.0 gpm for 1.0 hrs.
Drawdown: ft. *Static water level:* 10.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative
County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: TCS *on:*
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 720.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 661.0
UTM Easting: 575575.0 ***UTM Northing:*** 4409465.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOP SOIL
3.0	56.0	CLAY
56.0	67.0	GRAVEL

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*		*Date completed*
63994	4224 N OXFORD 2900E		Tue, Dec 05, 1967

	Name	*Address*	*Telephone*
Owner-Contractor			
Well Owner	JAMES MILLER	4224 N OXFORD	
Building Contractor			
Drilling Contractor			
Equipment Operator	RASH	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 64.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 61.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 4.5	*Material:*	*Diameter: Slot size:*

Well Capacity Test ***Type of test:*** ***Test rate:*** 8.0 gpm for 0.5 hrs. ***Bail Test rate:*** gpm for hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative

County: MARION
Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 17 *Township:* 16N *Range:* 4E
Field located by: MCBH ***Topo map:*** INDIANAPOLIS EAST
Courthouse location by: *on:* Sun, Nov 01, 1992
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 721.0 *Depth to bedrock:* ***Bedrock elevation:*** *Aquifer elevation:* 667.0
UTM Easting: 575580.0 ***UTM Northing:*** 4409430.0

Well Log

Top	Bottom	Formation
0.0	10.0	TOP SOIL & CLAY
10.0	38.0	SAND
38.0	56.0	CLAY
56.0	64.0	SAND

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63993		Fri, Sep 13, 1974

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	TOM MOORE	4215 N OXFORD	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS ST	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 81.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 81.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 4.0 *Slot size:*

Well Capacity Test ***Type of test:*** ***Test rate:*** 20.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. *Static water level:* 15.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative
County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCB11 *on:* Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: *on:*
Subdivision name: ***Lot number:***

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 720.0	*Depth to bedrock:*	***Bedrock elevation:***	*Aquifer elevation:* 649.0

UTM Easting: 575525.0 ***UTM Northing:*** 4409415.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOPSOIL
3.0	69.0	OVERBURDEN
69.0	81.0	GRAV

Comments MC 649

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63650	ON CHITTENDEN ST. 4TH. LOT N. OF 43RD. ST. ON E. SIDE	Thu, Nov 10, 1988

	Name	*Address*	*Telephone*
Owner-Contractor			
Well Owner	INDPLS. WATER CO.	INDPLS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N. CR #300W KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O JOHN W STEVE B.RUSSELL M	License: 325	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test *Type of test:* AIR *Test rate:* gpm for hrs. *Bail Test rate:* gpm for hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information *Material:* BENSEAL *Depth:* from 70.0 to 0.0
Installation Method: *Number of bags used:* 5.0

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: NE 1/4 of the SW 1/4 of the NE 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST
Field located by: RDB *on:* Tue, Nov 22, 1988
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* 3500 *Ft E of WL:* 3700 *Ft S of NL:*
Ground elevation: 740.0 *Depth to bedrock:* 97.0 *Bedrock elevation:* 643.0 *Aquifer elevation:*
UTM Easting: 574682.9 *UTM Northing:* 4409612.0

Well Log

Top	Bottom	Formation
0.0	5.0	YEL CLAY
5.0	36.0	S & G
36.0	40.0	MD CRS BR SAND
40.0	51.0	CRS SAND SMALL GRAV
51.0	76.0	GRAY CLAY
76.0	89.0	GRAY S & G
89.0	94.5	BR CLAY
94.5	97.0	BROKEN LS
97.0	100.0	LS GRAY

Comments MC 643 ;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63653	ON 42ND ST. , 2ND LOT E. OF NORWALDO ST. ON N. SIDE	Wed, Nov 09, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.		
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED G,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 86.5	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 81.5	***Material:*** PVC	***Diameter:*** 2.0
Screen	***Length:*** 5.0	***Material:*** PVC WW	***Diameter: Slot size:*** 040

Well Capacity Test	***Type of test:*** AIR	***Test rate:*** 20.0 gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	***Static water level:*** 26.0 ft.	

Grouting Information	***Material:*** BENSEAL	***Depth:*** from 30.0 to 0.0
	Installation Method:	***Number of bags used:*** 2.0

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: SE 1/4 of the SW 1/4 of the NE 1/4 of Section 18		***Topo map:*** INDIANAPOLIS WEST	
	Field located by: JRB		***on:*** Tue, Nov 22, 1988	
	Courthouse location by:		***on:***	
	Location accepted w/o verification by:		***on:***	
	Subdivision name:		***Lot number:***	
	Ft W of EL:	***Ft N of SL:*** 2800	***Ft E of WL:*** 3350	***Ft S of NL:***
	Ground elevation: 740.0	***Depth to bedrock:*** 93.0	***Bedrock elevation:*** 647.0	***Aquifer elevation:***
	UTM Easting: 574577.3		***UTM Northing:*** 4409377.0	

Well Log

Top	Bottom	Formation
0.0	7.0	YEL CLAY
7.0	12.0	S & G CRS
12.0	28.0	MD S & G
28.0	41.0	MD CRS S & G
41.0	53.0	SAND FN TO MD
53.0	56.0	GRAY CLAY
56.0	93.0	CRS SAND & GRAV GRAY
93.0	100.0	LS GRAY

Comments MC 647; 18'S. OF ALLEY;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63652	ON KINGNSLEY ST. 4TH LOT N. OF 42ND. ST ON W. SIDE	Thu, Nov 10, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.		
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	***Length:***	***Material:***	***Diameter:***
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test	*Type of test:* AIR	*Test rate: gpm for hrs.*	*BailTest rate: gpm for hrs.*
	Drawdown: ft.	***Static water level:*** ft.	

Grouting Information	***Material:*** BENSEAL	***Depth:*** from 70.0 to 0.0
	Installation Method:	***Number of bags used:*** 6.0

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: SW 1/4 of the SW 1/4 of the NE 1/4 of Section 18			***Topo map:*** INDIANAPOLIS WEST
	Field located by: JRB		***on:*** Tue, Nov 22, 1988	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by:		***on:***	
	Subdivision name:		*Lot number:*	
	Ft W of EL:	***Ft N of SL:*** 2950	***Ft E of WL:*** 2725	***Ft S of NL:***
	Ground elevation: 740.0	*Depth to bedrock:* 93.0	*Bedrock elevation:* 647.0	*Aquifer elevation:*
	UTM Easting: 574421.9		***UTM Northing:*** 4409467.0	

Well Log

Top	Bottom	Formation
0.0	2.0	FILL
2.0	5.0	YEL CLAY
5.0	48.0	S & G CRS
48.0	58.0	SAND
58.0	63.0	S & G
63.0	69.0	BLUE CLAY
69.0	70.0	S & G
70.0	72.5	CLAY & GRAV MIX
72.5	77.5	S & G
77.5	80.0	BLUE CLAY
80.0	86.0	S & FN GRAV
86.0	91.0	SOFT GRAY CLAY
91.0	92.5	BROKEN LS & GRAV

Reference 129 Page 134

92.5 95.0 LS GRAY

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*		*Date completed*
63651	ON KINGSLEY ST. 5TH. LOT S. OF 42ND. ST. ON W. SIDE		Mon, Nov 14, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS,WATER CO.		
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details			
Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 83.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 78.0	*Material:* PVC	*Diameter:* 2.0
Screen	*Length:* 5.0	*Material:* WW PVC	*Diameter: Slot size:* .010

Well Capacity Test	*Type of test:* AIR	*Test rate:* 20.0 gpm for hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: ft.	*Static water level:* 25.0 ft.	

Grouting Information	*Material:* BENSEAL	*Depth:* from 40.0 to 0.0
	Installation Method:	*Number of bags used:* 4.0

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Administrative				
	County: MARION		*Township:* 16N *Range:* 4E	
	Section: NW 1/4 of the SW 1/4 of the NE 1/4 of Section 18			*Topo map:* INDIANAPOLIS WEST
	Field located by: JRB		*on:* Tue, Nov 22, 1988	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by:		*on:*	
	Subdivision name:		*Lot number:*	
	Ft W of EL:	*Ft N of SL:* 3700	*Ft E of WL:* 2700	*Ft S of NL:*
	Ground elevation: 740.0	*Depth to bedrock:* 83.0	*Bedrock elevation:* 657.0	*Aquifer elevation:*
	UTM Easting: 574383.6		*UTM Northing:* 4409662.0	

Well Log

Top	Bottom	Formation
0.0	6.0	YEL CLAY
6.0	22.0	YEL S & G
22.0	33.0	S & FN G
33.0	44.0	S & CRS G
44.0	54.0	CRS SAND & CLAY STRIPS
54.0	58.0	S & MD G
58.0	76.0	S W/ G STRIPS
76.0	83.0	S & CRS G
83.0	90.0	LS

Comments

	107.0	120.0	S & G
	120.0	125.5	GRAV & BR LS W/SAND
	125.5	128.0	LT. YEL LS

Comments WT 610'

Record of Water Well

Indiana Department of Natural Resources

DS-2

Reference Number	*Driving directions to well*	*Date completed*
160596	ON N. SIDE OF STATE FAIR GROUNDS SCHOOL FOR DEAF	Thu, Mar 23, 1989

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS. WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241 N.CR #300W KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	RICK G,RUSSELL M,STEVE P,JACK	License: 330	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 128.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test	*Type of test:* AIR	*Test rate: gpm for hrs.*	*Bail Test rate: gpm for hrs.*
	Drawdown: ft.	*Static water level:* ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: SE 1/4 of the SE 1/4 of the NW 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: WJS *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* 2750 *Ft E of WL:* 2300 *Ft S of NL:*

Ground elevation: 735.0 *Depth to bedrock:* 125.0 *Bedrock elevation:* 610.0 *Aquifer elevation:*

UTM Easting: 574266.6 *UTM Northing:* 4409375.0

Well Log

Top	Bottom	Formation
0.0	0.0	M-V-C- GRAV & SOME F GR SOPME
0.0	5.0	BR CLAY
5.0	21.0	GRAV & SAND
21.0	24.5	GRAV & SAND
24.5	27.0	GRAV & SAND
27.0	32.0	S & G
32.0	50.0	CRS GRAV & SAND
50.0	56.0	SAND & GRAV
56.0	70.0	SAND & FN GRAV
70.0	75.0	S & G
75.0	89.0	CLAY S & G
89.0	103.0	S & G
103.0	107.0	GRAY CLAY

Record of Water Well

Indiana Department of Natural Resources

DS-1

Reference Number	*Driving directions to well*	*Date completed*
190586	ON N. SIDE OF STATE FAIR GROUNDS SCHOOL FOR DEAF	Wed, Mar 22, 1989

	Name	*Address*	*Telephone*
Owner-Contractor	[illegible]	[illegible]	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	[illegible] P,RUSSELL	License: 330	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 93.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 88.0	*Material:* PVC	*Diameter:* 2.0
Screen	*Length:* 5.0	*Material:* PVC SCH 40	*Diameter:* Slot Size: 010
Well Capacity Test	*Type of test:* AIR	*Test rate:* 15.0 gpm for hrs.	*Bail Test rate:* gpm for hrs.
	Drawdown: ft.	*Static water level:* 24.0 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*
Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: WJS *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* 1950 *Ft S of NL:* 2500

Ground elevation: 736.0 *Depth to bedrock:* 119.0 *Bedrock elevation:* 617.0 *Aquifer elevation:*

UTM Easting: 574124.1 *UTM Northing:* 4409363.0

Well Log

Top	Bottom	Formation
0.0	4.0	BR CLAY
4.0	6.0	F GR & M GS
6.0	8.0	BR CLAY
8.0	30.0	M-C GR W/SOME M-CS & F GR
30.0	38.0	M-C S W/SOME F-M GR
38.0	44.0	F-M GR W/SOME M-CS
44.0	58.0	F-CS W/TRACE OF F-M GR
58.0	69.5	F-M GR W/SOME C GR & M-CS
69.5	73.5	GRAY CLAY
73.5	75.0	S & FN G
75.0	77.0	GRAY CLAY
77.0	84.0	M-CS W/SOME M GR
84.0	92.0	CS & F GR W/SOME M GR

	92.0	95.0	CS & F-M GR SOME C GR
	95.0	98.5	GRAY CLAY LAYERS CS & F GR
	98.5	112.5	F-C SAND,FN GRAV ,GRAY CLAY
	112.5	115.0	F-M GR & GR LS W/ M-C SAND
	115.0	115.5	LS BOULDER
	115.5	119.0	F-M GRAV & BROKEN LIME SAND
	119.0	125.0	WH LIME

Comments MC 617;

Record of Water Well

Indiana Department of Natural Resources

DS-3

Reference Number	*Driving directions to well*	*Date completed*
160552	ON N. SIDE OF STATE FAIR GROUNDS SCHOOL FOR DEAF	Thu, Mar 23, 1989

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS. WATER CO.		
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241 N.CR #300W KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	RICK O,JACK C,STEVE P,RUSSELL	License. 330	

Construction Details

Well	***Use:***	***Drilling method:***	***Pump type:***
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	***Length:***	***Material:***	***Diameter:***
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test	*Type of test:*	*Test rate:* gpm for hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: ft.	***Static water level:*** ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Administrative				
	County: MARION		*Township:* 16N *Range:* 4E	
	Section: SE 1/4 of the SW 1/4 of the NW 1/4 of Section 18			***Topo map:*** INDIANAPOLIS WEST
	Field located by:		***on:***	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by: WIS		***on:***	
	Subdivision name:		*Lot number:*	
	Ft W of EL:	***Ft N of SL:*** 2750	***Ft E of WL:*** 1350	***Ft S of NL:***
	Ground elevation: 736.0	*Depth to bedrock:* 95.0	*Bedrock elevation:* 641.0	*Aquifier elevation:*
	UTM Easting: 573979.4		***UTM Northing:*** 4409365.0	

Well Log

Top	Bottom	Formation
0.0	3.0	BR CLAY
3.0	21.0	CRS GRAV,FN GRAV,MD SAND
21.0	34.0	SAND & GRAV
34.0	46.0	GRAV & SAND
46.0	59.0	SAND & GRAV
59.0	60.0	CRS GRAV
60.0	75.0	GRAY CLAY & S & G
75.0	83.0	SAND & GRAV
83.0	90.0	S & G
90.0	93.0	GRAY CLAY
93.0	95.0	BROKEN LIME & GRAV
95.0	98.0	LS

Comments MC 641 :

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63649	S. OF 46TH. & CRESTVIEW ST. IN SE CORNER JUST N. OF SCHOOL OF BLIND	Tue, Nov 15, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO	INDIANAPOLIS IN	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 125.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 120.0	*Material:* PVC	*Diameter:* 2.0
Screen	*Length:* 5.0	*Material:* PVC	*Diameter: Slot size:* 040

Well Capacity Test

Type of test: AIR *Test rate:* 20.0 gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 27.0 ft.

Grouting Information

Material: BENSEAL *Depth:* from 65.0 to 0.0
Installation Method: TRIMME PIPE *Number of bags used:* 5.5

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: SE 1/4 of the NW 1/4 of the NW 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST
Field located by: JRB *on:* Tue, Nov 22, 1988
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 1150 *Ft S of NL:* 1250
Ground elevation: 740.0 *Depth to bedrock:* 131.0 *Bedrock elevation:* 609.0 *Aquifer elevation:*
UTM Easting: 573902.4 *UTM Northing:* 4409749.0

Well Log

Top	Bottom	Formation
0.0	3.0	DARK BE CLAY
3.0	12.0	LT BR CLAY
12.0	17.0	GRAY CLAY
17.0	35.0	S & FN G
35.0	43.0	S & FN G
43.0	58.0	S & G MD-CRS
58.0	65.0	S & FN G
65.0	83.0	S & G STREAKS
83.0	102.0	SOFT GRAY CLAY
102.0	115.0	CRS S & FN G
115.0	131.0	CRS S & MD G
131.0	133.0	LS GRAY

Record of Water Well

Indiana Department of Natural Resources

DS-4

Reference Number	*Driving directions to well*	*Date completed*
160542	ON N. SIDE OF STATE FAIR GROUNDS SCHOOL FOR DEAF	Tue, Mar 21, 1989

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS. WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241 N.CR #300W KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	RICK O,RUSSELL M,STEVE P,JACK	License: 330	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 80.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:***	***Material:***	***Diameter:***
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** AIR ***Test rate:*** gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative ***County:*** MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the SW 1/4 of the NW 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS WEST
Field located by: ***on:***
Courthouse location by: ***on:***
Location accepted w/o verification by: WJS ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** 2750 ***Ft E of WL:*** 150 ***Ft S of NL:***
Ground elevation: 737.0 ***Depth to bedrock:*** 78.0 ***Bedrock elevation:*** 659.0 ***Aquifer elevation:***
UTM Easting: 573609.3 ***UTM Northing:*** 4409346.0

Well Log

Top	Bottom	Formation
0.0	5.0	BR CLAY
5.0	26.0	YEL BR GRAV
26.0	34.5	YEL SAND CRS FN GRAV
34.5	50.0	GRAV
50.0	70.0	S & G
70.0	78.0	GRAV
78.0	80.0	WH LS

Comments MC 659 ;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63648	S. OF 46TH ST. & CRESTVIEW AT SW CORNER JUST N. OF BLIND SCHOOL	Tue, Nov 15, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 105.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 100.0	***Material:*** PVC	***Diameter:*** 2.0
Screen	***Length:*** 5.0	***Material:*** WW PVC	***Diameter: Slot size:*** 080

Well Capacity Test	***Type of test:*** AIR	***Test rate:*** 20.0 gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	***Static water level:*** 28.3 ft.	

Grouting Information	***Material:*** BENSEAL	***Depth:*** from 60.0 to 0.0
	Installation Method:	***Number of bags used:*** 4.5

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: SW 1/4 of the NW 1/4 of the NW 1/4 of Section 18		***Topo map:*** INDIANAPOLIS WEST	
	Field located by: JRB		***on:*** Tue, Nov 22, 1988	
	Courthouse location by:		***on:***	
	Location accepted w/o verification by:		***on:***	
	Subdivision name:		***Lot number:***	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:*** 100	***Ft S of NL:*** 1000
	Ground elevation: 740.0	***Depth to bedrock:*** 128.0	***Bedrock elevation:*** 612.0	***Aquifer elevation:***
	UTM Easting: 573603.9		***UTM Northing:*** 4409783.0	

Well Log

Top	Bottom	Formation
0.0	4.0	DARK BR CLAY
4.0	7.0	S & FN G
7.0	9.0	YEL CLAY
9.0	17.0	GRAY CLAY
17.0	33.0	BR S & MD G
33.0	37.0	S & FN G
37.0	44.0	CRS GRAV
44.0	54.0	S & FN G
54.0	60.0	S & CRS G
60.0	64.0	S & FN G
64.0	72.0	S & CRS G
72.0	78.0	S & FN G
78.0	83.0	S & CRS G

83.0	90.0	S & FN G
90.0	97.0	S & CRS G IN STRIPS
97.0	102.0	S & FN G
102.0	110.5	CRS S & MD G
110.5	128.5	SOFT GRAY CLAY
128.5	131.0	LS GRAY

Comments

Record of Water Well

Indiana Department of Natural Resources

DS-5

Reference Number	*Driving directions to well*	*Date completed*
160537	ON N. SIDE OF STATE FAIR GROUNDS SCHOOL FOR DEAF	Tue, Mar 21, 1989

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	RICK O,STEVE P,RUSSELL M,JACK	License: 330	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 83.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 80.0	*Material:* PVC	*Diameter:* 2.0
Screen	*Length:* 5.0	*Material:* PVC	*Diameter: Slot size:* .040

Well Capacity Test — *Type of test:* AIR — *Test rate:* 10.0 gpm for hrs — *BailTest rate:* gpm for hrs
Drawdown: ft. — *Static water level:* 21.5 ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Administrative

County: MARION — *Township:* 16N *Range:* 4E
Section: NW 1/4 of the SW 1/4 of the NW 1/4 of Section 18 — *Topo map:* INDIANAPOLIS WEST
Field located by: — *on:*
Courthouse location by: — *on:*
Location accepted w/o verification by: WIS — *on:*
Subdivision name: — *Lot number:*
Ft W of EL: — *Ft N of SL:* — *Ft E of WL:* 150 — *Ft S of NL:* 1900
Ground elevation: 735.0 — *Depth to bedrock:* 122.0 — *Bedrock elevation:* 613.0 — *Aquifer elevation:*
UTM Easting: 573593.1 — *UTM Northing:* 4409567.0

Well Log

Top	Bottom	Formation
0.0	5.0	BR CLAY
5.0	25.0	FN TO MD GRAV ,M-C SAND
25.0	45.0	M-C GRAV CS & F-GR & VC GR
45.0	62.0	F-M GRAY SAND CS SAND
62.0	92.5	F-M GRAY SAND CS - F GR
92.5	100.0	F-M SAND W/S CS & F GR & CLAY
100.0	108.0	GRAY CLAY
108.0	122.5	F-M GRAY S W/S CS & F GR
122.5	124.0	WH LS

Comments MC 613;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
233626	GO ALLISONVILLE RD TO 5700 BLOCK OR IND 37A	Tue, Jul 12, 1960

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	ROBERT E GUION	5747 ALLISONVILLE RD	
Building Contractor			
Drilling Contractor	GULLIOWARD & PHELPS	2055 N IRWIN ST	
Equipment Operator	PAUL GULLION	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 160.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 113.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test ***Type of test:*** ***Test rate:*** 15.0 gpm for 6.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 0.0 ft. ***Static water level:*** 60.0 ft.

Grouting Information ***Material:*** *Depth:* from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative
County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the NW 1/4 of the SW 1/4 of Section 4 ***Topo map:*** INDIANAPOLIS EAST
Field located by: JM11 *on:* Mon, Jan 09, 1961
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** 1800 ***Ft E of WL:*** 700 ***Ft S of NL:***
Ground elevation: 775.0 ***Depth to bedrock:*** 113.0 ***Bedrock elevation:*** ***Aquifer elevation:***
UTM Easting: 576836.5 ***UTM Northing:*** 4412191.5

Well Log

Top	Bottom	Formation
0.0	30.0	YEL CLAY
30.0	68.0	S & G
68.0	76.0	CLAY
76.0	104.0	BRN CLAY
104.0	113.0	RED CLAY
113.0	160.0	STONE

Comments CHEM ON LOG

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63936	E OF OLD 37 S OF KESSLER BLVD ON BLUFF OVERLOOKING 56TH ST	Sat, Jun 24, 1961

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	SCHAEFER	5800 ALLISONVILLE	
Building Contractor			
Drilling Contractor	CARLEE DRILLING	2746 E STOP 8TH	
Equipment Operator	VIC MOORE	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 93.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 96.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 12.0 gpm for 2.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 3.0 ft. ***Static water level:*** 42.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: NW 1/4 of the SW 1/4 of the SW 1/4 of Section 4 ***Topo map:*** INDIANAPOLIS EAST
Field located by: JMH ***on:*** Sat, Jan 30, 1960
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** 1100 ***Ft E of WL:*** 400 ***Ft S of NL:***
Ground elevation: 760.0 ***Depth to bedrock:*** 90.0 ***Bedrock elevation:*** ***Aquifer elevation:***
UTM Easting: 576825.0 ***UTM Northing:*** 4412150.0

Well Log

Top	Bottom	Formation
0.0	16.0	YEL CLAY
16.0	38.0	BRN CLAY
38.0	58.0	HARDPAN
58.0	62.0	GRAV
62.0	88.0	GRAY HARDPAN
88.0	90.0	BRN MUCK
90.0	93.0	YEL LIME

Comments MC 670

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63943	5630 N FOREST MANOR AVE. (W SIDE)	Fri, Mar 01, 1974

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	USES		
Building Contractor			
Drilling Contractor	USES		
Equipment Operator	MYER & HERRING	License:	

Construction Details

Well	***Use:***	***Drilling method:***	***Pump type:***
	Depth: 34.5	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 32.0	***Material:***	***Diameter:*** 1.5
Screen	*Length:* 2.5	*Material:*	*Diameter:* 1.25 *Slot size:* 50

Well Capacity Test	***Type of test:***	***Test rate:*** gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	*Static water level:* 8.29 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Administrative	*County:* MARION		*Township:* 16N *Range:* 4E	
	Section: SE 1/4 of the SW 1/4 of the SW 1/4 of Section 4			***Topo map:*** INDIANAPOLIS EAST
	Field located by: MCDH		*on:* Sun, Nov 01, 1992	
	Courthouse location by:		***on:***	
	Location accepted w/o verification by:		***on:***	
	Subdivision name:		***Lot number:***	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
	Ground elevation: 736.0	*Depth to bedrock:*	***Bedrock elevation:***	*Aquifer elevation:* 699.0
	UTM Easting: 577060.0		***UTM Northing:*** 4411840.0	

Well Log

Top	Bottom	Formation
0.0	5.0	CLAY
5.0	17.0	GRAVEL
17.0	30.0	CLAY
30.0	37.0	S&G

Comments (MC 699)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63880	5550 N CHESTER LANE	Thu, Oct 25, 1973

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	ALLAN SKLARE	5550 N CHESTER	
Building Contractor			
Drilling Contractor	C A MARTIN	6629 ACTOR RD	
Equipment Operator	BRIAN DEER	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 55.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:***	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 5.0	***Material:***	***Diameter:*** 3.0 ***Slot size:*** .030

Well Capacity Test ***Type of test:*** ***Test rate:*** 900.0 gpm for 2.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 15.0 ft. ***Static water level:*** 10.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the NW 1/4 of the NW 1/4 of Section 9 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBII ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 737.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 682.0
UTM Easting: 576965.0 ***UTM Northing:*** 4411695.0

Well Log

Top	Bottom	Formation
0.0	18.0	YEL CLAY
18.0	27.0	HARDPAN
27.0	32.0	BLK MUD
32.0	55.0	BLK S & G

Comments MC 682

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
168598	5445 PARK DRIVE	Thu, Jul 05, 1973

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	IRVIN EINK	5445 N PARK DRIVE	
Building Contractor	IRVIN EINK	5445 N PARK DRIVE	
Drilling Contractor	JIM WILMAN	7801 MOORESVILLE RD W	
Equipment Operator	JIM WILSON	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 50.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 50.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:* 5.0	*Material:*	*Diameter:* 3.0 *Slot size:* 6

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 5.0 gpm for 1.0 hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NW 1/4 of the SE 1/4 of the NE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: U *on:* Tue, Jan 01, 1974
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: 600 ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:*** 1300
Ground elevation: 740.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 690.0
UTM Easting: 576511.0 ***UTM Northing:*** 4411394.0

Well Log

Top	Bottom	Formation
0.0	18.0	RED GRIT
18.0	50.0	BLUE S & G

Comments MC

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64106	2400E 5300N; 5343 ALLISONVILLE ROAD	Mon, Oct 24, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner			
Building Contractor	BOB BIDDLECOMBE		
Drilling Contractor	HAMILTON BROS. INC.	4025 ROCKVILLE ROAD, INDIANAPOLIS, IND 46222	
Equipment Operator	ROBERT SCHELLENBERG	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 70.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 4.0	***Material:***	***Diameter:*** 66.0
Screen	*Length:* 4.0	*Material:*	*Diameter:* 4.0 *Slot size:* 60

Well Capacity Test ***Type of test:*** ***Test rate:*** 1.0 gpm for 10.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 15.0 ft. ***Static water level:*** 25.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative ***County:*** MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the SW 1/4 of the NE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 744.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 674.0
UTM Easting: 576225.0 ***UTM Northing:*** 4411260.0

Well Log

Top	Bottom	Formation
0.0	8.0	TOPSOIL & CLAY
8.0	70.0	GRAVEL

Comments MC 674

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64109	I-70 TO KEYSTONE, GO N TO 37, GO R TO PAST 46TH ST TO 1ST STR, GO L ON DELMAR, 3RD HOUSE ON L	Mon, Jul 28, 1986

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	RENO FORSYTH	3635 DELMAR RD	
Building Contractor			
Drilling Contractor	MATLOCK	4701 W MORRIS	
Equipment Operator	JERRY OAKLEY	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:*** SUBMERSIBLE
	Depth:	***Pump setting depth:*** 60.0	***Water quality:***
Casing	***Length:*** 75.0	***Material:***	***Diameter:*** 5.0
Screen	***Length:*** 5.0	***Material:***	***Diameter:*** 5.0 ***Slot size:*** 6

Well Capacity Test ***Type of test:*** BAILING ***Test rate:*** 10.0 gpm for 1.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 20.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SE 1/4 of the SE 1/4 of the NE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: ***on:*** Sun, Mar 01, 1987
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 743.0 ***Depth to bedrock:*** 75.0 ***Bedrock elevation:*** 668.0 ***Aquifer elevation:***
UTM Easting: 576480.0 ***UTM Northing:*** 4411025.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOP SOIL
3.0	20.0	CLAY
20.0	35.0	GRAV
35.0	55.0	CLAY
55.0	75.0	CLAY & GRAV
75.0	82.0	LS

Comments WF #60

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
168588	62nd St	Sun, May 21, 1961

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	PHIL JONES	3527 E STOP 8TH	
Building Contractor			
Drilling Contractor	CARLEE DRILLING	2746 E STOP 8TH	
Equipment Operator	JIM MOORE	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 97.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 90.5	***Material:***	***Diameter:*** 4.0
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for 6.5 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 1.0 ft. ***Static water level:*** 30.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NW 1/4 of the NE 1/4 of the SE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: JMH ***on:*** Tue, Jan 30, 1962
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: 1100 ***Ft N of SL:*** 2500 ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 745.0 ***Depth to bedrock:*** 90.0 ***Bedrock elevation:*** ***Aquifer elevation:***
UTM Easting: 576379.7 ***UTM Northing:*** 4410980.5

Well Log

Top	Bottom	Formation
0.0	6.0	TOPSOIL
6.0	31.0	GRAV
31.0	49.0	GRAY CLAY
49.0	53.0	GRAY CLAY
53.0	82.0	YEL CLAY
82.0	90.5	RED CLAY
90.5	96.0	LS
96.0	97.0	HARD PAN

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64104	3525 DELMAR RD.	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	VIRGINIA MC LENAN	112 E. 86TH. ST. INDPLS,IN. 46240	
Building Contractor			
Drilling Contractor	HAMILTON BROS,INC.	4025 ROCKVILLE RD. INDPLS,IN. 46222	
Equipment Operator	DAVID R. HARNESS	License: 35	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:*** SUBMERSIBLE
	Depth: 68.0	***Pump setting depth:*** 35.0	***Water quality:*** CLEAR
Casing	***Length:*** 64.0	***Material:*** PVC	***Diameter:*** 4.0
Screen	***Length:*** 4.0	***Material:*** PVC	***Diameter:*** 4.0 ***Slot size:*** .060

Well Capacity Test ***Type of test:*** BAILING ***Test rate:*** 10.0 gpm for 1.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 20.0 ft. ***Static water level:*** 15.0 ft.

Grouting Information ***Material:*** ENVIRO PLUG ***Depth:*** from 0.0 to 60.0
Installation Method: TREMMIE ***Number of bags used:*** 5.0

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative ***County:*** MARION ***Township:*** 16N ***Range:*** 4E
Section: SE 1/4 of the SW 1/4 of the NE 1/4 of Section 8 ***Topo map:*** FISHERS
Field located by: MC BN ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 745.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifier elevation:*** 677.0
UTM Easting: 576235.0 ***UTM Northing:*** 4411025.0

Well Log

Top	Bottom	Formation
0.0	4.0	TOPSOIL & CLAY
4.0	30.0	GRAV
30.0	60.0	CLAY
60.0	68.0	GRAV

Comments MC 677 ;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
168583		Mon, Jul 03, 1961

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	PHIL JONES	3426 E 8TH ST	
Building Contractor			
Drilling Contractor	CARLEE DRILLING	2746 E STOP 8TH	
Equipment Operator	MOORE	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 81.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 78.0	*Material:*	*Diameter:* 4.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test	*Type of test:*	*Test rate:* 12.0 gpm for 1.0 hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: 7.0 ft.	*Static water level:* 34.0 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Administrative	*County:* MARION		*Township:* 16N *Range:* 4E	
	Section: NE 1/4 of the NW 1/4 of the SE 1/4 of Section 8			*Topo map:* INDIANAPOLIS EAST
	Field located by: JMH		*on:* Tue, Jan 30, 1962	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by:		*on:*	
	Subdivision name:		*Lot number:*	
	Ft W of EL: 1400	*Ft N of SL:* 2100	*Ft E of WL:*	*Ft S of NL:*
	Ground elevation: 745.0	*Depth to bedrock:* 16.0	*Bedrock elevation:* 670.0	*Aquifer elevation:*
	UTM Easting: 576297.8		*UTM Northing:* 4410855.5	

Well Log

Top	Bottom	Formation
0.0	8.0	YEL CLAY
8.0	38.0	BRN CLAY
38.0	58.0	GRAY MUD
58.0	62.0	GRAY MUD
62.0	76.0	GRAY CLAY
76.0	81.0	LS

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
168593	N ON OLD 37 TO 52ND ST E TO 3324 E 52ND	Wed, Jul 01, 1959

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	PHIL JONES	52ND ST	
Building Contractor			
Drilling Contractor	CARLEE DRILLING	2746 E STOP 8TH	
Equipment Operator	DON BROWN	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 122.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 101.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 11.0 gpm for 1.5 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 3.0 ft. ***Static water level:*** 23.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NW 1/4 of the NW 1/4 of the SE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: STEEN ***on:*** Wed, Mar 08, 1961
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: 2000 ***Ft N of SL:*** 2500 ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 745.0 ***Depth to bedrock:*** 89.0 ***Bedrock elevation:*** 656.0 ***Aquifer elevation:***
UTM Easting: 576107.9 ***UTM Northing:*** 4410983.5

Well Log

Top	Bottom	Formation
0.0	7.0	TOPSOIL
7.0	33.0	YEL GRAV
33.0	41.0	GRAY MUD
41.0	47.0	YEL GRAV
47.0	60.0	HARDPAN
60.0	73.0	GRAY MUD
73.0	89.0	MUD
89.0	101.0	BRN STONE
101.0	102.0	ROTTEN STONE
102.0	122.0	LS

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
168558	GO N ON OLD 37 TO 56TH ST E TO 3315	Thu, Mar 02, 1961

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	PHIL JONES	3315E 56TH ST	
Building Contractor			
Drilling Contractor	CARLEEE DRILLING	2746 E STOP 8TH	
Equipment Operator	DON BROWN	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 121.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 118.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 10.0 gpm for 1.0 hrs.
Drawdown: ft. ***Static water level:*** 31.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SE 1/4 of the NW 1/4 of the SE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: JMH ***on:*** Tue, Jan 30, 1962
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: 2000 ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 745.0 ***Depth to bedrock:*** 100.0 ***Bedrock elevation:*** 645.0 ***Aquifer elevation:***
UTM Easting: 576103.1 ***UTM Northing:*** 4410848.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOPSOIL
3.0	14.0	GRAY HARDPAN
14.0	53.0	YEL CLAY
53.0	71.0	GRAY MUD
71.0	100.0	RED MUD
100.0	121.0	YEL LS

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
168628	WELL DRILLED AT 4805 N DEARBORN, IND	Wed, Aug 24, 1960

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	CLARENCE MYERS	4905 N DEARBORN, IND	
Building Contractor			
Drilling Contractor	HARRY FOX	RR 6 SHELBYVILLE, IND	
Equipment Operator	CEDRIC HOBAN	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 36.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 34.5	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 3.0	***Material:***	***Diameter:*** 3.75 ***Slot size:*** 30

Well Capacity Test ***Type of test:*** ***Test rate:*** 9.0 gpm for 2.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 2.0 ft. ***Static water level:*** 20.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative ***County:*** MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the NW 1/4 of the SE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: ***on:***
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 744.0	***Depth to bedrock:***	***Bedrock elevation:***	***Aquifer elevation:***
UTM Easting: 575975.0		***UTM Northing:*** 4410685.0	

Well Log

Top	Bottom	Formation
0.0	12.0	YEL CLAY
12.0	36.0	GRAV

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64102	WELL DRILLED AT 4905 NORTH DEARBORN, INDIANAPOLIS,I N	Wed, Aug 24, 1960

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MRS CLARENCE MYERS	4905 N DEARBORN IND'PLS	
Building Contractor			
Drilling Contractor	HARRY H. FOX & SONS	ROUTE 6 SHELBVYVILLE, IN	
Equipment Operator	CEDRIC HOBAN	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 36.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 34.5	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 3.0	***Material:***	***Diameter:*** 3.75 ***Slot size:*** 30

Well Capacity Test ***Type of test:*** ***Test rate:*** 9.0 gpm for 2.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 2.0 ft. ***Static water level:*** 20.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative ***County:*** MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the NW 1/4 of the SE 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 744.0	***Depth to bedrock:***	***Bedrock elevation:***	***Aquifer elevation:***
UTM Easting: 575975.0		***UTM Northing:*** 4410685.0	

Well Log

Top	Bottom	Formation
0.0	12.0	YELLOW CLAY
12.0	36.0	GRAVEL (WATER)

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64097	47TH ST AND SR 37	Wed, Aug 28, 1957

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	FORD	4101 SR 37	
Building Contractor			
Drilling Contractor	INDIANAPOLIS PUMP & EQUIP	2720 BRETT ST INDIANAPOLIS, IND	
Equipment Operator	JOE STONELL	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 38.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 36.0	*Material:*	*Diameter:* 4.5
Screen	*Length:* 4.5	*Material:*	*Diameter:* 3.0 *Slot size:* 6

Well Capacity Test *Type of test:* *Test rate:* gpm for hrs. *BailTest rate:* 15.0 gpm for 1.0 hrs.
Drawdown: ft. *Static water level:* 15.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: NE 1/4 of the SW 1/4 of the SE 1/4 of Section 8 *Topo map:* INDIANAPOLIS EAST
Field located by: MCBH *on:* Sun, Nov 01, 1992
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 727.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:*
UTM Easting: 576125.0 *UTM Northing:* 4410430.0

Well Log

Top	Bottom	Formation
0.0	5.0	MUD
5.0	38.0	RED GRAV

Comments MC 689

Record of Water Well

Indiana Department of Natural Resources

Reference Number 64099	***Driving directions to well*** 4800 NORTH 3113 EAST		***Date completed*** Fri, Mar 01, 1968
Owner-Contractor Well Owner Building Contractor Drilling Contractor Equipment Operator	***Name*** BUD KREIGH	***Address*** License:	***Telephone***

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 85.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 82.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 4.5	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 10.0 gpm for 0.5 hrs.
Drawdown: ft. ***Static water level:*** ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative ***County:*** MARION ***Township:*** 16N ***Range:*** 4E
Section: NW 1/4 of the SE 1/4 of the SW 1/4 of Section 8 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN ***on:*** Thu, Apr 01, 1982
Courthouse location by: ***on:***
Location accepted w/o verification by: HCK ***on:*** Wed, May 01, 1968
Subdivision name: ***Lot number:***

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 742.0	***Depth to bedrock:***	***Bedrock elevation:***	***Aquifer elevation:*** 657.0
UTM Easting: 575780.0		***UTM Northing:*** 4410445.0	

Well Log

Top	Bottom	Formation
0.0	8.0	TOP SOIL & CLAY
8.0	20.0	SAND
20.0	22.0	CLAY
22.0	43.0	SAND
43.0	59.0	CLAY
59.0	85.0	SAND

Comments MC 657; GRAPHIC LOG

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64098	3105 E 48TH ST	Fri, Sep 29, 1967

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	HESSONG	3105 E 48TH ST	
Building Contractor			
Drilling Contractor	EARL H MERRITT WELL DRILLING	2998 WESTLANE RD NEW AUGUSTA	
Equipment Operator	KENNETH KENNEDY	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 55.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 55.0	*Material:*	*Diameter:* 4.25
Screen	*Length:* 5.25	*Material:*	*Diameter:* 3.0 *Slot size:* 8

Well Capacity Test	*Type of test:*	*Test rate:* 33.0 gpm for 1.5 hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: 10.0 ft.	*Static water level:* 25.0 ft.	

Grouting Information	***Material:***	***Depth:*** from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: NE 1/4 of the SE 1/4 of the SW 1/4 of Section 8			*Topo map:* INDIANAPOLIS EAST
	Field located by: MCBH		***on:*** Sun, Nov 01, 1992	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by:		***on:***	
	Subdivision name:		*Lot number:*	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
	Ground elevation: 741.0	***Depth to bedrock:***	*Bedrock elevation:*	*Aquifier elevation:*
	UTM Easting: 575745.0		*UTM Northing:* 4410445.0	

Well Log

Top	Bottom	Formation
0.0	55.0	YEL GRAV

Comments MC 686

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63638	3000 EAST - 4600 NORTH	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	CARSON	3021 E. 46TH ST.	
Building Contractor			
Drilling Contractor	HAMILTON BROS.	4025 ROCKVILLE RD	
Equipment Operator		License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 70.0	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 69.0	***Material:***	***Diameter:*** 4.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for 4.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: NE 1/4 of the NE 1/4 of the NW 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***

Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 727.0	*Depth to bedrock:* 57.0	*Bedrock elevation:* 620.0	*Aquifer elevation:*

UTM Easting: 575875.0 ***UTM Northing:*** 4410135.0

Well Log

Top	Bottom	Formation
0.0	15.0	CLAY
15.0	20.0	SAND
20.0	57.0	CLAY
57.0	60.0	BROKEN STONE

Comments MC 670

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63644	S SIDE OF E 46TH ST BETWEEN RDS 37 & 37A NEAR POND	Fri, Jul 22, 1966

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	JAMES ASSOC	122 E MICHIGAN ST INDPLS, IND	
Building Contractor			
Drilling Contractor	CLARK DRILLING	1015 E 28TH ST INDPLS, IND	
Equipment Operator	WHITE	License:	

Construction Details

Well	***Use:*** INDUSTRY	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 65.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 60.0	***Material:***	***Diameter:*** 6.0
Screen	***Length:*** 6.0	***Material:***	***Diameter:*** 6.0 ***Slot size:*** 80

Well Capacity Test ***Type of test:*** ***Test rate:*** 201.0 gpm for 1.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 40.0 ft. ***Static water level:*** 10.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NW 1/4 of the NE 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 728.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 663.0
UTM Easting: 575660.0 ***UTM Northing:*** 4410140.0

Well Log

Top	Bottom	Formation
0.0	7.0	CLAY
7.0	42.0	S & G
42.0	51.0	GRAY CLAY
51.0	65.0	WATER GRAV

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63640	HWY 37A	Fri, Feb 15, 1963

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	KREBAY CONSTR	SE CORNER	
Building Contractor			
Drilling Contractor	HAMILTON BROS	4025 ROCKVILLE RD INDPLS, IND	
Equipment Operator	EDMUND RANDOLPH	License:	

Construction Details

Well	***Use:*** INDUSTRY	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 60.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 57.0	***Material:***	***Diameter:*** 4.5
Screen	***Length:*** 4.0	***Material:***	***Diameter:*** 3.0 ***Slot size:*** 60

Well Capacity Test ***Type of test:*** ***Test rate:*** 30.0 gpm for 2.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 7.0 ft. ***Static water level:*** 13.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the NW 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 731.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 671.0
UTM Easting: 575490.0 ***UTM Northing:*** 4410125.0

Well Log

Top	Bottom	Formation
0.0	2.0	TOPSOIL
2.0	4.0	CLAY
4.0	18.0	S & G
18.0	43.0	SANDY CLAY
43.0	55.0	SAND
55.0	60.0	S & G

Comments MC 671

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
82165	4546 ALLISONVILLE RD	Wed, Jun 19, 1968

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	OWEN BECKLEY	4546 ALLISONVILLE RD	
Building Contractor			
Drilling Contractor	MERRITT WELL DRILLING CO INC	2998 WESTLANE RD INDPLS IN 46268 46268	
Equipment Operator	DON KENNEDY	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 62.0	***Pump setting depth:***	***Water quality:***
Casing	*Length:*	*Material:*	*Diameter:* 4.25
Screen	***Length:*** 4.0	***Material:***	***Diameter: Slot size:*** 8

Well Capacity Test	*Type of test:*	*Test rate:* 33.33 gpm for hrs.	*BailTest rate:* gpm for hrs.
	Drawdown: ft.	***Static water level:*** 20.0 ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	***Number of bags used:***

Administrative

County: MARION		***Township:*** 16N ***Range:*** 4E	
Section: NE 1/4 of the NW 1/4 of the NW 1/4 of Section 17			*Topo map:* INDIANAPOLIS EAST
Field located by:		***on:***	
Courthouse location by:		*on:*	
Location accepted w/o verification by: WCH		***on:*** Tue, Jan 07, 1969	
Subdivision name:		*Lot number:*	
Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 732.0	***Depth to bedrock:***	*Bedrock elevation:*	***Aquifer elevation:*** 670.0
UTM Easting: 575450.0		*UTM Northing:* 4410040.0	

Well Log

Top	Bottom	Formation
0.0	8.0	TOP SOIL AND CLAY
8.0	32.0	YEL GRAV
32.0	35.0	YEL GRAV & SAND,SOME WTR
35.0	58.0	GRAY & GRN GRAVELY CLAY, HARD
58.0	62.0	GRN & GRAY G & S

Comments WF #371

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
169916	BETWEEN SR 37 AND ALLISONVILLE RD S OF 45TH ST	Tue, Aug 14, 1973

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MULTI USE CENTER	2831 E 45TH ST	
Building Contractor			
Drilling Contractor	DAVE SIGMAN	8217 BASH ST CASTLETOWN, IND 48250	
Equipment Operator	NOLES CREED	License:	

Construction Details

Well	***Use:*** INDUSTRY	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 57.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 56.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 3.25	***Material:***	***Diameter:*** 3.0 ***Slot size:*** 20

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for 1.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 35.0 ft. ***Static water level:*** 15.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the NE 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCB11 ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 724.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 667.0
UTM Easting: 575535.0 ***UTM Northing:*** 4409950.0

Well Log

Top	Bottom	Formation
0.0	5.0	YEL CLAY
5.0	13.0	GRAV
13.0	28.0	SAND
28.0	52.0	BLUE CLAY
52.0	57.0	YEL S & G

Comments MC 667

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63639	4500 NORTH KEYSTONE	Thu, Jun 29, 1967

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	TUCHMAN CLEANERS	4500 N KEYSTONE	
Building Contractor			
Drilling Contractor			
Equipment Operator		License:	

Construction Details

Well	***Use:*** INDUSTRY	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 145.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 77.0	***Material:***	***Diameter:*** 8.0
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 150.0 gpm for 6.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 20.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the NW 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: CHCK MARK U ***on:*** Sat, Jul 01, 1967
Subdivision name: ***Lot number:***

Ft W of EL: 735	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: ~~728.0~~	***Depth to bedrock:*** 71.0	***Bedrock elevation:*** ~~620.0~~ 640	***Aquifer elevation:***
UTM Easting: 575140.0		***UTM Northing:*** 4409880.0	

Well Log

Top	Bottom	Formation
0.0	15.0	CLAY
15.0	31.0	SAND DRY
31.0	40.0	FINE SAND & CLAY
40.0	60.0	MUDDY GREEN FINE SAND
60.0	70.0	SANDY CLAY
70.0	71.0	BROWN SAND
71.0	95.0	LIMESTONE
95.0	120.0	BROWN LIME
120.0	125.0	BLUE LIME
125.0	135.0	BROWN LIME
135.0	145.0	WHITE LIME

Comments MC 657

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63995	I-70 TO KEYSTONE AVE & N TO MILLERSVILLE RD & RIGHT TO OXFORD & N E2900 6950N	Fri, Aug 12, 1983

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	GEORGE HAYES	4232 N OXFORD	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS	
Equipment Operator	JERRY OAKLEY	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	***Length:*** 69.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 5.0	***Material:***	***Diameter:*** 4.0 ***Slot size:*** #6

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** 10.0 gpm for 1.0 hrs.
Drawdown: ft. ***Static water level:*** 10.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBN ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: TCS ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 730.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 661.0
UTM Easting: 575575.0 ***UTM Northing:*** 4409465.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOP SOIL
3.0	56.0	CLAY
56.0	67.0	GRAVEL

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63994	4224 N OXFORD 2900E	Tue, Dec 05, 1967

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	JAMES MILLER	4224 N OXFORD	
Building Contractor			
Drilling Contractor			
Equipment Operator	RASH	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 64.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 61.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 4.5	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 8.0 gpm for 0.5 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative ***County:*** MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 731.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 667.0
UTM Easting: 575580.0 ***UTM Northing:*** 4409430.0

Well Log

Top	Bottom	Formation
0.0	10.0	TOP SOIL & CLAY
10.0	38.0	SAND
38.0	56.0	CLAY
56.0	64.0	SAND

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63993		Fri, Sep 13, 1974

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	TOM MOORE	4215 N OXFORD	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS ST	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 81.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 81.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 5.0	***Material:***	***Diameter:*** 4.0 ***Slot size:***

Well Capacity Test	***Type of test:***	***Test rate:*** 20.0 gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	***Static water level:*** 15.0 ft.	

Grouting Information	***Material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 17			***Topo map:*** INDIANAPOLIS EAST
	Field located by: MCBH		***on:*** Sun, Nov 01, 1992	
	Courthouse location by:		***on:***	
	Location accepted w/o verification by:		***on:***	
	Subdivision name:		***Lot number:***	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
	Ground elevation: 730.0	***Depth to bedrock:***	***Bedrock elevation:***	***Aquifer elevation:*** 649.0
	UTM Easting: 575525.0		***UTM Northing:*** 4409415.0	

Well Log

Top	Bottom	Formation
0.0	3.0	TOPSOIL
3.0	69.0	OVERBURDEN
69.0	81.0	GRAV

Comments MC 649

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63654		

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	C BOXTER		
Building Contractor			
Drilling Contractor	HAMILTON BROS	4025 ROCKVILLE RD	
Equipment Operator	JOHN OAKLEY	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 61.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 58.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 4.0	***Material:***	***Diameter:*** 3.0 ***Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 25.0 ft. ***Static water level:*** 22.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the SE 1/4 of the NE 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: U ***on:*** Mon, Mar 01, 1965
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 737.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 676.0
UTM Easting: 574925.0 ***UTM Northing:*** 4409740.0

Well Log

Top	Bottom	Formation
0.0	7.0	CLAY
7.0	31.0	GRAV
31.0	52.0	CLAY
52.0	62.0	GRAV

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63655		

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	BOYD	2622	
Building Contractor			
Drilling Contractor			
Equipment Operator	WOODIE	License:	

Construction Details

Well	***Use:***	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 102.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:***	***Material:***	***Diameter:***
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the SE 1/4 of the NE 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:***
Courthouse location by: ***on:***
Location accepted w/o verification by: U ***on:*** Wed, Jul 01, 1964
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 734.0 ***Depth to bedrock:*** 86.0 ***Bedrock elevation:*** 648.0 ***Aquifier elevation:***
UTM Easting: 575000.0 ***UTM Northing:*** 4409690.0

Well Log

Top	Bottom	Formation
0.0	35.0	GRAV
35.0	42.0	CLAY
42.0	53.0	GRAV
53.0	86.0	CLAY
86.0	99.0	STONE
99.0	102.0	LS

Comments MC 648

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
160512	2321 E. 40TH. ST. , N. SIDE	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	U.S.G.S.		
Building Contractor			
Drilling Contractor	U.S.G.S.		
Equipment Operator	SOUTHWOOD-GILLIN	License:	

Construction Details

Well	***Use:***	***Drilling method:*** OTHER	***Pump type:***
	Depth: 23.5	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 21.0	***Material:***	***Diameter:*** 23.5
Screen	***Length:*** 2.5	***Material:***	***Diameter:*** 1.25 ***Slot size:*** 50

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 19.63 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the SE 1/4 of the SE 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MC BH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 735.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 710.0
UTM Easting: 575050.9 ***UTM Northing:*** 4408864.0

Well Log

Top	Bottom	Formation
0.0	5.0	TOPSOIL & CLAY
5.0	10.0	SANDY CLAY
10.0	25.0	MD S & G TO CLAY

Comments MC 710,

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63657	3450 HOVEREY ST	Mon, Feb 15, 1965

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MRS WAGNER	4316 E 38TH N DR	
Building Contractor			
Drilling Contractor	CLAUDE ROYSTON	RR 2 BOX 125	
Equipment Operator	SELF	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:*	*Pump type:*
	Depth: 56.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 55.0	*Material:*	*Diameter:* 2.0
Screen	*Length:*	*Material:*	*Diameter:* 1.25 *Slot size:*

Well Capacity Test — *Type of test:* — *Test rate:* 10.0 gpm for 2.0 hrs. — *BailTest rate:* gpm for hrs.
Drawdown: ft. — *Static water level:* ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Administrative

County: MARION — *Township:* 16N *Range:* 4E
Section: SE 1/4 of the SE 1/4 of the NW 1/4 of Section 19 — *Topo map:* INDIANAPOLIS EAST
Field located by: MCBH — *on:* Sun, Nov 01, 1992
Courthouse location by: — *on:*
Location accepted w/o verification by: UCH — *on:* Tue, Jan 07, 1969
Subdivision name: — *Lot number:*
Ft W of EL: — *Ft N of SL:* — *Ft E of WL:* — *Ft S of NL:*
Ground elevation: 735.0 — *Depth to bedrock:* — *Bedrock elevation:* — *Aquifer elevation:* 679.0
UTM Easting: 574100.0 — *UTM Northing:* 4407840.0

3700

Well Log

Top	Bottom	Formation
0.0	0.0	NO INFORMATION

Comments MC 679; GRAVEL ALL WAY

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63660	1120 EAST 32ND STREET	Wed, Jan 11, 1967

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	ERBRICH PRODUCTS CO., INC.	1120 EAST 32ND STREET, INDIANAPOLIS, IND.	
Building Contractor			
Drilling Contractor	ENGLISH & SON, INC.	RR 1, CLAYTON, IND.	
Equipment Operator	DESTER HARNESS	License:	

Construction Details

Well	*Use:* INDUSTRY	*Drilling method:* ROTARY	*Pump type:*
	Depth: 162.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 110.0	*Material:*	*Diameter:* 6.5
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* 50.0 gpm for hrs.

Drawdown: ft. *Static water level:* 40.0 ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: NE 1/4 of the SW 1/4 of the SW 1/4 of Section 19 *Topo map:* INDIANAPOLIS EAST

Field located by: MCBN *on:* Sun, Nov 01, 1992

Courthouse location by: *on:*

Location accepted w/o verification by: *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*

Ground elevation: 730.0 *Depth to bedrock:* 110.0 *Bedrock elevation:* 600.0 *Aquifer elevation:*

UTM Easting: 573675.0 *UTM Northing:* 4407170.0

Well Log

Top	Bottom	Formation
0.0	1.0	BLANK
1.0	12.0	CLAY GRAY
12.0	50.0	SAND BROWN
50.0	110.0	CLAY GRAY
110.0	162.0	LIME WHITE

Comments MC 620

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63661	KNOWN AS MCKINSTIARY ICE CREAM PLACE JUST N OF 30TH ST ON W SIDE MARTINDALE AVE	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	M J KILDYKE	3024 MARTINDALE AVE	
Building Contractor			
Drilling Contractor	PAUL GULLION	2055 N IRWIN ST INDIANAPOLIS, IND	
Equipment Operator	PAUL GULLION	License:	

Construction Details

Well	***Use:*** INDUSTRY	***Drilling method:***	***Pump type:***
	Depth: 120.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 98.9	***Material:***	***Diameter:*** 4.0
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test

Type of test: ***Test rate:*** 15.0 gpm for 6.0 hrs. ***BailTest rate:*** gpm for hrs.

Drawdown: 15.0 ft. ***Static water level:*** 36.0 ft.

Grouting Information

Material: ***Depth:*** from to

Installation Method: ***Number of bags used:***

Well Abandonment

Sealing material: ***Depth:*** from to

Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E

Section: SE 1/4 of the SW 1/4 of the SW 1/4 of Section 19 ***Topo map:*** INDIANAPOLIS EAST

Field located by: MCBH ***on:*** Sun, Nov 01, 1992

Courthouse location by: ***on:***

Location accepted w/o verification by: ***on:***

Subdivision name: ***Lot number:***

Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***

Ground elevation: 730.0 ***Depth to bedrock:*** 99.0 ***Bedrock elevation:*** 631.0 ***Aquifer elevation:***

UTM Easting: 573845.0 ***UTM Northing:*** 4407000.0

Well Log

Top	Bottom	Formation
0.0	48.0	RED CLAY
48.0	62.0	GRAY CLAY
62.0	68.0	BLUE CLAY
68.0	84.0	BRN CLAY
84.0	99.0	GREEN CLAY
99.0	120.0	LS

Comments MC 631

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63676	4 SQ E OF SHERMAN DR 2 SQ N OF 30 N	Sun, Apr 08, 1962

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	PHIL DAVIS	3700 COLORADO	
Building Contractor			
Drilling Contractor	CLAUDE ROYSTON	RR 2 BOX 125 GREENWOOD, IND	
Equipment Operator	CLAUDE ROYSTON	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:*	*Pump type:*
	Depth: 48.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 44.0	*Material:*	*Diameter:* 2.0
Screen	*Length:* 30.0	*Material:*	*Diameter:* 1.25 *Slot size:*

Well Capacity Test

Type of test: *Test rate:* 10.0 gpm for 2.0 hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* 15.0 ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: NW 1/4 of the SE 1/4 of the SW 1/4 of Section 21 *Topo map:* INDIANAPOLIS EAST

Field located by: MCBH *on:* Sun, Nov 01, 1992

Courthouse location by: *on:*

Location accepted w/o verification by: *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*

Ground elevation: 803.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifer elevation:* 755.0

UTM Easting: 577345.0 *UTM Northing:* 4407165.0

Well Log

Top	Bottom	Formation
0.0	15.0	CLAY
15.0	22.0	GRAV
22.0	35.0	CLAY
35.0	48.0	GRAV

Comments MC 755

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63675	6 BLKS E OF SHERMAN DR 31 N	Tue, Jan 23, 1962

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	PHIL DAVIS	3140 COLORADO	
Building Contractor			
Drilling Contractor	CLAUDE ROYSTON	RR 2 BOX 125 GREENWOOD, IND	
Equipment Operator	CLAUDE ROYSTON	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:***	***Pump type:***
	Depth: 94.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 90.0	***Material:***	***Diameter:*** 2.0
Screen	***Length:*** 30.0	***Material:***	***Diameter:*** 1.25 ***Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 6.0 gpm for 3.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 84.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NW 1/4 of the SE 1/4 of the SW 1/4 of Section 21 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 785.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 691.0
UTM Easting: 577340.0 ***UTM Northing:*** 4407285.0

Well Log

Top	Bottom	Formation
0.0	0.0	CONFLICTING DEPTH INFO
0.0	16.0	CLAY
16.0	21.0	GRAV
21.0	77.0	CLAY
71.0	74.0	GRAV
74.0	84.0	CLAY
84.0	94.0	GRAV

Comments MC 691

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63674		Sat, Mar 19, 1983

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	GRUNDY	ST 3166 COLORADO	
Building Contractor			
Drilling Contractor	WATER WELLS BY WILHITE	6065 N MICHIGAN RD INDPLS, IND	
Equipment Operator	KENNETH TOOKE	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* ROTARY	*Pump type:*
	Depth: 90.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 4.0
Screen	*Length:* 4.0	*Material:*	*Diameter:* 4.0 *Slot size:* .060

Well Capacity Test

Type of test: *Test rate:* 10.0 gpm for 1.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 65.0 ft. *Static water level:* 25.0 ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: NW 1/4 of the SE 1/4 of the SW 1/4 of Section 21 *Topo map:* INDIANAPOLIS EAST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 785.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:* 695.0
UTM Easting: 577345.0 *UTM Northing:* 4407335.0

Well Log

Top	Bottom	Formation
0.0	1.0	TOPSOIL
1.0	25.0	CLAY
25.0	28.0	GRAV
28.0	80.0	CLAY
80.0	90.0	GRAV

Comments

MC 695

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63667	3345 N. GALE	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	R. DAVIS	3345 N. GALE	
Building Contractor			
Drilling Contractor	CLAYTON HAMILTON	R 4 BOX 24, GREENWOOD	
Equipment Operator	CLAYTON HAMILTON	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 87.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 84.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 4.5	***Material:***	***Diameter:*** 3.2 ***Slot size:*** 6

Well Capacity Test	***Type of test:***	***Test rate:*** gpm for hrs.	***BailTest rate:*** 10.0 gpm for 1.5 hrs.
	Drawdown: ft.	***Static water level:*** 65.0 ft.	

Grouting Information	***Material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Administrative

County: MARION		***Township:*** 16N ***Range:*** 4E	
Section: NW 1/4 of the NE 1/4 of the SE 1/4 of Section 20			***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH		***on:*** Sun, Nov 01, 1992	
Courthouse location by: CB		***on:*** Thu, Jun 09, 1960	
Location accepted w/o verification by:		***on:***	
Subdivision name:		***Lot number:***	
Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
Ground elevation: 780.0	***Depth to bedrock:***	***Bedrock elevation:***	***Aquifier elevation:*** 693.0
UTM Easting: 576495.0		***UTM Northing:*** 4407635.0	

Well Log

Top	Bottom	Formation
0.0	8.0	CLAY
8.0	14.0	SAND ROCKS
14.0	79.0	CLAY
79.0	87.0	SAND & GRAVEL

Comments MC 693;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63645	REAR OF ROUST GROVE OFF 3436 E 38TH ST	Mon, Mar 27, 1961

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MARKIN	3436 E 35TH ST	
Building Contractor			
Drilling Contractor	C C HAMILTON	2912 E MURRAY	
Equipment Operator	CHESTER HAMILTON	License:	

Construction Details

Well	*Use:*	*Drilling method:* JET	*Pump type:*
	Depth: 64.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 6.0	*Material:*	*Diameter:* 2.0
Screen	*Length:* 2.5	*Material:*	*Diameter:* 1.25 *Slot size:* 6

Well Capacity Test — *Type of test:* — *Test rate:* 10.0 gpm for 2.0 hrs. — *BailTest rate:* gpm for hrs.
Drawdown: ft. — *Static water level:* 63.0 ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Administrative

County: MARION — *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SE 1/4 of the SE 1/4 of Section 17 — *Topo map:* INDIANAPOLIS EAST
Field located by: MCBH — *on:* Sun, Nov 01, 1992
Courthouse location by: — *on:*
Location accepted w/o verification by: — *on:*
Subdivision name: — *Lot number:*
Ft W of EL: — *Ft N of SL:* — *Ft E of WL:* — *Ft S of NL:*
Ground elevation: 775.0 — *Depth to bedrock:* — *Bedrock elevation:* — *Aquifer elevation:* 711.0
UTM Easting: 576325.0 — *UTM Northing:* 4408560.0

Well Log

Top	Bottom	Formation
0.0	21.0	CLAY
21.0	25.0	S & G
25.0	38.0	BLUE CLAY
38.0	49.0	YEL S & G
49.0	54.0	CLAY
54.0	64.0	S & G

Comments MC

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63636	2600E 38TH	Sun, Jul 24, 1977

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MEADOWS MOTEL		
Building Contractor	OXFORD MANAGEMENT		
Drilling Contractor	HAMILTON BROS INC	PO BOX 24181 INDPLS IN 46224	
Equipment Operator	DESTER HARNESS	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 144.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 86.0	***Material:***	***Diameter:*** 8.0
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 100.0 gpm for 1.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SE 1/4 of the SW 1/4 of the SW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: BRUNS ***on:*** Thu, Nov 17, 1977
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 734.0 ***Depth to bedrock:*** 86.0 ***Bedrock elevation:*** 648.0 ***Aquifier elevation:***
UTM Easting: 575365.0 ***UTM Northing:*** 4408565.0

Well Log

Top	Bottom	Formation
0.0	10.0	TOPSOIL AND CLAY
10.0	45.0	SAND & GRAVEL
45.0	86.0	CLAY
86.0	144.0	LIMESTONE

Comments MC 648;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63993		Fri, Sep 13, 1974

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	TOM MOORE	4215 N OXFORD	
Building Contractor			
Drilling Contractor	MATLOCK WELL DRILLING	4701 W MORRIS ST	
Equipment Operator	ALLEN MATLOCK	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 81.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 81.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 5.0	***Material:***	***Diameter:*** 4.0 ***Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 20.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 15.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 17 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 730.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 649.0
UTM Easting: 575525.0 ***UTM Northing:*** 4409415.0

Well Log

Top	Bottom	Formation
0.0	3.0	TOPSOIL
3.0	69.0	OVERBURDEN
69.0	81.0	GRAV

Comments MC 649

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
160512	2321 E. 40TH. ST. , N. SIDE	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	U.S.G.S.		
Building Contractor			
Drilling Contractor	U.S.G.S.		
Equipment Operator	SOUTHWOOD-GILLIN	License:	

Construction Details

Well	***Use:***	***Drilling method:*** OTHER	***Pump type:***
	Depth: 23.5	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 21.0	***Material:***	***Diameter:*** 23.5
Screen	***Length:*** 2.5	***Material:***	***Diameter:*** 1.25 ***Slot size:*** 50

Well Capacity Test ***Type of test:*** ***Test rate:*** gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 19.63 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the SE 1/4 of the SE 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MC BH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 735.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifier elevation:*** 710.0
UTM Easting: 575050.9 ***UTM Northing:*** 4408864.0

Well Log

Top	Bottom	Formation
0.0	5.0	TOPSOIL & CLAY
5.0	10.0	SANDY CLAY
10.0	25.0	MD S & G TO CLAY

Comments MC 710;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63655		

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	BOYD	2622	
Building Contractor			
Drilling Contractor			
Equipment Operator	WOODIE	License:	

Construction Details

Well	***Use:***	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 102.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:***	***Material:***	***Diameter:***
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test	***Type of test:***	***Test rate:*** 10.0 gpm for hrs.	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	***Static water level:*** ft.	

Grouting Information	***Material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: NE 1/4 of the SE 1/4 of the NE 1/4 of Section 18			***Topo map:*** INDIANAPOLIS EAST
	Field located by: MCBH		***on:***	
	Courthouse location by:		***on:***	
	Location accepted w/o verification by: U		***on:*** Wed, Jul 01, 1964	
	Subdivision name:		***Lot number:***	
	Ft W of EL:	***Ft N of SL:***	***Ft E of WL:***	***Ft S of NL:***
	Ground elevation: 734.0	***Depth to bedrock:*** 86.0	***Bedrock elevation:*** 648.0	***Aquifer elevation:***
	UTM Easting: 575000.0		***UTM Northing:*** 4409690.0	

Well Log

Top	Bottom	Formation
0.0	35.0	GRAV
35.0	42.0	CLAY
42.0	53.0	GRAV
53.0	86.0	CLAY
86.0	99.0	STONE
99.0	102.0	LS

Comments MC 648

Reference 129 Page 188

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63654		

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	C BOXTER		
Building Contractor			
Drilling Contractor	HAMILTON BROS	4025 ROCKVILLE RD	
Equipment Operator	JOHN OAKLEY	License:	

Construction Details

Well	***Use:*** HOME	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 61.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 58.0	***Material:***	***Diameter:*** 4.0
Screen	***Length:*** 4.0	***Material:***	***Diameter:*** 3.0 ***Slot size:***

Well Capacity Test ***Type of test:*** ***Test rate:*** 10.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 25.0 ft. ***Static water level:*** 22.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the SE 1/4 of the NE 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS EAST
Field located by: MCBH ***on:*** Sun, Nov 01, 1992
Courthouse location by: ***on:***
Location accepted w/o verification by: U ***on:*** Mon, Mar 01, 1965
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:***
Ground elevation: 737.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifer elevation:*** 676.0
UTM Easting: 574925.0 ***UTM Northing:*** 4409740.0

Well Log

Top	Bottom	Formation
0.0	7.0	CLAY
7.0	31.0	GRAV
31.0	52.0	CLAY
52.0	62.0	GRAV

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63653	ON 42ND ST. , 2ND LOT E. OF NORWALDO ST. ON N. SIDE	Wed, Nov 09, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.		
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 86.5	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 81.5	*Material:* PVC	*Diameter:* 2.0
Screen	*Length:* 5.0	*Material:* PVC WW	*Diameter: Slot size:* .040

Well Capacity Test — *Type of test:* AIR; *Test rate:* 30.0 gpm for hrs; *Bail Test rate:* gpm for hrs; *Drawdown:* ft.; *Static water level:* 26.0 ft.

Grouting Information — *Material:* BENSEAL; *Depth:* from 30.0 to 0.0; *Installation Method:*; *Number of bags used:* 2.0

Well Abandonment — *Sealing material:*; *Depth:* from to; *Installation Method:*; *Number of bags used:*

Administrative

County: MARION; *Township:* 16N *Range:* 4E

Section: SE 1/4 of the SW 1/4 of the NE 1/4 of Section 18; *Topo map:* INDIANAPOLIS WEST

Field located by: JRB; *on:* Tue, Nov 22, 1988

Courthouse location by:; *on:*

Location accepted w/o verification by:; *on:*

Subdivision name:; *Lot number:*

Ft W of EL:; *Ft N of SL:* 2800; *Ft E of WL:* 3350; *Ft S of NL:*

Ground elevation: 740.0; *Depth to bedrock:* 93.0; *Bedrock elevation:* 647.0; *Aquifier elevation:*

UTM Easting: 574577.3; *UTM Northing:* 4409377.0

Well Log

Top	Bottom	Formation
0.0	7.0	YEL CLAY
7.0	12.0	S & G CRS
12.0	28.0	MD S & G
28.0	41.0	MD CRS S & G
41.0	53.0	SAND FN TO MD
53.0	56.0	GRAY CLAY
56.0	93.0	CRS SAND & GRAV GRAY
93.0	100.0	LS GRAY

Comments — MC 647; 18' S. OF ALLEY;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63650	ON CHITTENDEN ST. 4TH. LOT N. OF 43RD. ST. ON E. SIDE	Thu, Nov 10, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS. WATER CO.	INDPLS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N. CR #300W KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O.JOHN W.STEVE B.RUSSELL M	License: 325	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth:	***Pump setting depth:***	***Water quality:***
Casing	***Length:***	***Material:***	***Diameter:***
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** AIR ***Test rate:*** gpm for hrs. ***RailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** ft.

Grouting Information ***Material:*** BENSEAL ***Depth:*** from 70.0 to 0.0
Installation Method: ***Number of bags used:*** 5.0

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: NE 1/4 of the SW 1/4 of the NE 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS WEST
Field located by: RDB ***on:*** Tue, Nov 22, 1988
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** 3500 ***Ft E of WL:*** 3700 ***Ft S of NL:***
Ground elevation: 740.0 ***Depth to bedrock:*** 97.0 ***Bedrock elevation:*** 643.0 ***Aquifier elevation:***
UTM Easting: 574682.9 ***UTM Northing:*** 4409612.0

Well Log

Top	Bottom	Formation
0.0	5.0	YEL CLAY
5.0	36.0	S & G
36.0	40.0	MD CRS BR SAND
40.0	51.0	CRS SAND SMALL GRAV
51.0	76.0	GRAY CLAY
76.0	89.0	GRAY S & G
89.0	94.5	BR CLAY
94.5	97.0	BROKEN LS
97.0	100.0	LS GRAY

Comments MC 643 ;

Reference 129 Page 191

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63652	ON KINGNSLEY ST. 4TH. LOT N. OF 42ND. ST ON W. SIDE	Thu, Nov 10, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.		
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test *Type of test:* AIR *Test rate:* gpm for hrs. *RailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information *Material:* BENSEAL *Depth:* from 70.0 to 0.0
Installation Method: *Number of bags used:* 6.0

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the SW 1/4 of the NE 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST
Field located by: JRB *on:* Tue, Nov 22, 1988
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* 2950 *Ft E of WL:* 2725 *Ft S of NL:*
Ground elevation: 740.0 *Depth to bedrock:* 93.0 *Bedrock elevation:* 647.0 *Aquifier elevation:*
UTM Easting: 574421.9 *UTM Northing:* 4409467.0

Well Log

Top	Bottom	Formation
0.0	2.0	FILL
2.0	5.0	YEL CLAY
5.0	48.0	S & G CRS
48.0	58.0	SAND
58.0	63.0	S & G
63.0	69.0	BLUE CLAY
69.0	70.0	S & G
70.0	72.5	CLAY & GRAV MIX
72.5	77.5	S & G
77.5	80.0	BLUE CLAY
80.0	86.0	S & FN GRAV
86.0	91.0	SOFT GRAY CLAY
91.0	92.5	BROKEN LS & GRAV

92.5	95.0	LS GRAY

Comments

Reference 129 Page 193

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
160596	ON N. SIDE OF STATE FAIR GROUNDS SCHOOL FOR DEAF	Thu, Mar 23, 1989

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS. WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241 N.CR #300W KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	RICK O,RUSSELL M,STEVE P,JACK	License: 330	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 128.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:***	***Material:***	***Diameter:***
Screen	***Length:***	***Material:***	***Diameter: Slot size:***

Well Capacity Test	***Type of test:*** AIR	***Test rate:*** gpm for hrs	***BailTest rate:*** gpm for hrs.
	Drawdown: ft.	***Static water level:*** ft.	

Grouting Information	***Material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Well Abandonment	***Sealing material:***	***Depth:*** from to
	Installation Method:	***Number of bags used:***

Administrative	***County:*** MARION		***Township:*** 16N ***Range:*** 4E	
	Section: SE 1/4 of the SE 1/4 of the NW 1/4 of Section 18			***Topo map:*** INDIANAPOLIS WEST
	Field located by:		***on:***	
	Courthouse location by:		***on:***	
	Location accepted w/o verification by: WJS		***on:***	
	Subdivision name:		***Lot number:***	
	Ft W of EL:	***Ft N of SL:*** 2750	***Ft E of WL:*** 2300	***Ft S of NL:***
	Ground elevation: 735.0	***Depth to bedrock:*** 125.0	***Bedrock elevation:*** 610.0	***Aquifier elevation:***
	UTM Easting: 574266.6		***UTM Northing:*** 4409375.0	

Well Log

Top	Bottom	Formation
0.0	0.0	M-V-C- GRAV & SOME F GR SOPME
0.0	5.0	BR CLAY
5.0	21.0	GRAV & SAND
21.0	24.5	GRAV & SAND
24.5	27.0	GRAV & SAND
27.0	32.0	S & G
32.0	50.0	CRS GRAV & SAND
50.0	56.0	SAND & GRAV
56.0	70.0	SAND & FN GRAV
70.0	75.0	S & G
75.0	89.0	CLAY S & G
89.0	103.0	S & G
103.0	107.0	GRAV CLAY

107.0	120.0	S & G
120.0	125.5	GRAV & BR LS W/SAND
125.5	128.0	LT. YEL LS

Comments MC 610 ;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63651	ON KINGSLEY ST. 5TH. LOT S. OF 42ND. ST. ON W. SIDE	Mon, Nov 14, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS.WATER CO.		
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN WI STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 83.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 78.0	*Material:* PVC	*Diameter:* 2.0
Screen	*Length:* 5.0	*Material:* WW PVC	*Diameter: Slot size:* .040

Well Capacity Test

Type of test: AIR *Test rate:* 20.0 gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 25.0 ft.

Grouting Information

Material: BENSEAL *Depth:* from 40.0 to 0.0
Installation Method: *Number of bags used:* 4.0

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: NW 1/4 of the SW 1/4 of the NE 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST
Field located by: JRB *on:* Tue, Nov 22, 1988
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* 3700 *Ft E of WL:* 2700 *Ft S of NL:*
Ground elevation: 740.0 *Depth to bedrock:* 83.0 *Bedrock elevation:* 657.0 *Aquifier elevation:*
UTM Easting: 574383.6 *UTM Northing:* 4409662.0

Well Log

Top	Bottom	Formation
0.0	6.0	YEL CLAY
6.0	22.0	YEL S & G
22.0	33.0	S & FN G
33.0	44.0	S & CRS G
44.0	54.0	CRS SAND & CLAY STRIPS
54.0	58.0	S & MD G
58.0	76.0	S W/ G STRIPS
76.0	83.0	S & CRS G
83.0	90.0	LS

Comments

Reference 129 Page 196

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63646	46TH. ST. TO MARCY VILLAGE IN SE CORNER OF MERCY VILLAGE	Wed, Nov 16, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 104.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 99.0	***Material:*** PVC	***Diameter:*** 2.0
Screen	***Length:*** 5.0	***Material:*** PVC WW	***Diameter: Slot size:*** .040

Well Capacity Test ***Type of test:*** AIR ***Test rate:*** 20.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 30.3 ft.

Grouting Information ***Material:*** BENSEAL ***Depth:*** from 40.0 to 0.0
Installation Method: ***Number of bags used:*** 3.0

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E
Section: SE 1/4 of the NE 1/4 of the NW 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS WEST
Field located by: JRB ***on:*** Tue, Nov 22, 1988
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** 2075 ***Ft S of NL:*** 1100
Ground elevation: 745.0 ***Depth to bedrock:*** 111.0 ***Bedrock elevation:*** 631.0 ***Aquifier elevation:***
UTM Easting: 574192.3 ***UTM Northing:*** 4409818.0

Well Log

Top	Bottom	Formation
0.0	4.0	DARK BR CLAY
4.0	9.0	LT BR CLAY
9.0	16.0	GRAY CLAY
16.0	30.0	S & FN GRAV
30.0	36.0	S & FN GRAV
36.0	38.0	BR SAND
38.0	50.0	S & MD G
50.0	53.0	S & CRS G
53.0	57.0	GRAY SAND
57.0	63.0	S & MD G
63.0	69.5	CRS G & S
69.5	86.0	GRAY CLAY
86.0	109.0	S & CRS G

109.0	111.0	GRAV & BROKEN LIME
111.0	115.0	LS GRAY

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
160486	S.E. CORNER OF MAREY VILLAGE, N. OF DEAF SCHOOL (FALL CREEK STATION) 1000' S. OF 46TH. STREET	Sat, Jul 22, 1989

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS. WATER CO.		
Building Contractor			
Drilling Contractor	LAYNE-NORTHERN CO.		
Equipment Operator	ROBERT COLLINS	License:	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* REVERSE ROTARY	*Pump type:*
	Depth: 103.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 86.0	*Material:*	*Diameter:* 24.0
Screen	*Length:* 17.0	*Material:* SS WW	*Diameter:* 24.0 *Slot size:* 120

Well Capacity Test

Type of test: *Test rate:* 2076.0 gpm for 48.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 35.0 ft. *Static water level:* 28.0 ft.

Grouting Information

Material: CONCRETE *Depth:* from 72.0 to 10.0
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: SW 1/4 of the NE 1/4 of the NW 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: WJS 03-90 *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 1850 *Ft S of NL:* 1200
Ground elevation: 740.0 *Depth to bedrock:* 109.0 *Bedrock elevation:* 631.0 *Aquifer elevation:*
UTM Easting: 574113.8 *UTM Northing:* 4409804.0

Well Log

Top	Bottom	Formation
0.0	7.0	TOP SOIL - BR CLAY
7.0	10.0	GRAV MD YEL
10.0	13.0	BR CLAY
13.0	24.0	CRS BR GRAV
24.0	25.0	BR CLAY
25.0	34.0	MD S & G GRAY
34.0	67.0	MD TO CRS GRAY GRAV BOULDER
67.0	82.0	GRAY CLAY
82.0	103.0	GRAY GRAV CRS TO MD
103.0	109.0	GRAY CLAY
109.0	0.0	LS

Comments MC 631;WELL #18;

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63649	S. OF 46TH. & CRESTVIEW ST. IN SE CORNER JUST N. OF SCHOOL OF BLIND	Tue, Nov 15, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOIIN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 125.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 120.0	*Material:* PVC	*Diameter:* 2.0
Screen	*Length:* 5.0	*Material:* PVC	*Diameter: Slot size:* .040

Well Capacity Test

Type of test: AIR *Test rate:* 20.0 gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 27.0 ft.

Grouting Information

Material: BENSEAL *Depth:* from 65.0 to 0.0
Installation Method: TRIMME PIPE *Number of bags used:* 5.5

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 4E
Section: SE 1/4 of the NW 1/4 of the NW 1/4 of Section 18 *Topo map:* INDIANAPOLIS WEST
Field located by: JRB *on:* Tue, Nov 22, 1988
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 1150 *Ft S of NL:* 1250
Ground elevation: 740.0 *Depth to bedrock:* 131.0 *Bedrock elevation:* 609.0 *Aquifier elevation:*
UTM Easting: 573902.4 *UTM Northing:* 4409749.0

Well Log

Top	Bottom	Formation
0.0	3.0	DARK BE CLAY
3.0	12.0	LT BR CLAY
12.0	17.0	GRAY CLAY
17.0	35.0	S & FN G
35.0	43.0	S & FN G
43.0	58.0	S & G MD-CRS
58.0	65.0	S & FN G
65.0	83.0	S & G STREAKS
83.0	102.0	SOFT GRAY CLAY
102.0	115.0	CRS S & FN G
115.0	131.0	CRS S & MD G
131.0	133.0	LS GRAY

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255262	N. END OF ARSENAL PARK.,ABOUT 100' S. OF 49TH. ST. & 1/2 BLOCK W. OF INDIANOLA AVE.	Fri, Nov 01, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS. WATER CO.	1220 WATERWAY BLVD.,INDPLS,IN. 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241 N. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	RICK O,LOWELL C,SAM R,LEONARD	License: 330,329	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* ROTARY	*Pump type:*
	Depth: 140.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BENSEAL *Depth:* from 140 to 1

Installation Method: *Number of bags used:* 9

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: NE 1/4 of the SW 1/4 of the SW 1/4 of Section 7 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* 875 *Ft E of WL:* 1100 *Ft S of NL:*

Ground elevation: 745.0 *Depth to bedrock:* 133.0 *Bedrock elevation:* 612.0 *Aquifer elevation:*

UTM Easting: 573861.1 *UTM Northing:* 4410426.0

Well Log

Top	Bottom	Formation
0.0	5.0	BR CLAY
5.0	7.0	GRAV & BR CLAY MIXED
7.0	10.0	SANDY YELLOWISH BR CLAY
10.0	12.0	GREY CLAY
12.0	13.5	BR CLAY & GRAV
13.5	15.0	GREY CLAY
15.0	18.0	M-VERY C-GRAV
18.0	28.5	GRAV,SAND,VERY CRS GRAV
28.5	29.0	SANDY GREY CLAY
29.0	35.0	BR SAND,FN GRAV,CRS GRAV
35.0	46.0	CRS GRAV , CRS SAND FN SAND
46.0	60.0	CRS GRAV & CRS SAND
60.0	65.0	FN TO MD GRAV & CRS SAND

65.0	70.0	CRS GRAV & CRS SAND
70.0	77.5	FN TO MD GRAV & CRS SAND
77.5	80.0	SANDY GREY CLAY & FN GRAV
80.0	83.0	FN TO MD GRAV GREY CLAY
83.0	87.0	GREY CLAY
87.0	92.0	S & G
92.0	119.0	GREY CLAY
119.0	132.5	CRS GRAV ,BROKEN STONE ,SAND
132.5	139.5	LT GREY & TAN LS
139.5	140.0	CREVICE LOST ALL FLUID

Comments DPR 91-20 IGS GAMMA LOG 91 - 530 AVAILABLE ; MC 612 ; TRACE OF WOOD AT 50' - 55' ;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63832	ON WINTHROP ST S OF 42ND ST JUST S OF SMALL FACTORY ON E SD	Fri, Nov 11, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	INDIANAPOLIS INDIANA	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC.	241N CO RD 300W KOKOMO, IN 46901	(317)459-4125
Equipment Operator	NED O JOHN W STEVE B RUSSEL MC	License: 324325327	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 70.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 65.0	***Material:*** PVC	***Diameter:*** 2.0
Screen	***Length:*** 5.0	***Material:*** PVC	***Diameter: Slot size:*** .040

Well Capacity Test ***Type of test:*** AIR ***Test rate:*** 20.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: ft. ***Static water level:*** 23.0 ft.

Grouting Information ***Material:*** BNSL ***Depth:*** from 40.0 to 0.0
Installation Method: ***Number of bags used:*** 3.5

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 3E
Section: NE 1/4 of the NE 1/4 of the SE 1/4 of Section 13 ***Topo map:*** INDIANAPOLIS WEST
Field located by: JRB ***on:*** Tue, Nov 22, 1988
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: 25 ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:*** 250
Ground elevation: 740.0 ***Depth to bedrock:*** ***Bedrock elevation:*** ***Aquifier elevation:***
UTM Easting: 573543.4 ***UTM Northing:*** 4410057.0

Well Log

Top	Bottom	Formation
0.0	5.0	BRN CLAY
5.0	16.0	BRN CLAY & GRAVEL
16.0	20.0	DARK GRAY CLAY & GRAVEL
20.0	25.0	SAND & FN GRAVEL
25.0	37.0	S&G MED
37.0	47.0	S& COARSE G
47.0	56.0	S& SMALL G
56.0	73.5	S& MED G
73.5	75.5	S&G & CLAY
75.5	80.0	LS GRAY

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255261	IN SOUTH END OF ARSENAL PARK ABOUT 100 FEET NORTH OF 46TH STREET AND .5 BLOCK OF INDIANOLA AVENUE	Thu, Oct 31, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, IND. 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC.	241 NORTH, 300 WEST, KOKOMO, IND. 46901	(317)459-4125
Equipment Operator	RICK O LOWELL C SAM R LEONARD	License: 330 329 10	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* ROTARY	*Pump type:*
	Depth: 140.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BENSEAL *Depth:* from 140 to 0

Installation Method: *Number of bags used:* 7

Administrative

County: MARION *Township:* 16N *Range:* 4E

Section: SE 1/4 of the SW 1/4 of the SW 1/4 of Section 7 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* 100 *Ft E of WL:* 1100 *Ft S of NL:*

Ground elevation: 745.0 *Depth to bedrock:* 135.0 *Bedrock elevation:* 610.0 *Aquifer elevation:*

UTM Easting: 573805.8 *UTM Northing:* 4410136.0

Well Log

Top	Bottom	Formation
0.0	3.5	BROWN CLAY
3.5	5.5	CLAY & M-C GRAVEL
5.5	12.0	SANDY YEL-BRN CLAY & GRAVEL
12.0	17.0	M-C GRAVEL
17.0	23.0	YEL BRN SANDY CLAY
23.0	25.0	SANDY CLAY & GRAVEL
25.0	30.0	F-C GRAVEL & M-C SAND
30.0	33.0	F-C DAND W/ FINE GRAVEL
33.0	40.0	F-M GRAVE & C GRAVEL & M-C SAN
40.0	48.5	M-C GRAVEL, F GRAVEL, & VC GRA
48.5	65.0	F-M GRAVEL & M-C SAND & C GRAV
65.0	76.0	M-C SAND,F GRAV,M GRAV & F SAN

76.0	85.0	F-C GRAVE & M-C SAND
85.0	86.5	GREY GRITTY CLAY
86.5	87.0	SAND & F-M GRAVEL
87.0	88.5	GREY CLAY & BOULDERS
88.5	99.5	GREY CLAY, S & G
99.5	101.5	F-C SAND
101.5	107.0	GREY CLAY
107.0	115.0	F-M GRAV,STONE,GRAV,M-C SAND
115.0	120.0	F-M GRAVEL & M-C SAND, C GRAVE
120.0	125.0	F-C GAVEL,BROKEN STONE,M-C SAN
125.0	135.0	M-C BROKEN STONE & SOME GRAVEL
135.0	140.0	HARD LIGHT GREY & TAN LIMESTON

Comments DPR 91-19; IGS GAMMA LOG 91-528 AVAILABLE;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63647	ON 46TH. ST. 3 LOTS E. OF HAVERFORD ST.	Mon, Nov 14, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO.	INDIANAPOLIS,IN.	
Building Contractor			
Drilling Contractor	ORTMAN DRILLING,INC.	241N CR. 300W, KOKOMO,IN. 46901	(317)459-4125
Equipment Operator	NED O,JOHN W,STEVE B,RUSSELL	License: 324,325	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 104.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 99.0	***Material:***	***Diameter:***
Screen	***Length:*** 5.0	***Material:*** PVC	***Diameter: Slot size:*** .040

Well Capacity Test

Type of test: AIR ***Test rate:*** 20.0 gpm for hrs. ***BailTest rate:*** gpm for hrs.

Drawdown: ft. ***Static water level:*** 28.25 ft.

Grouting Information

Material: BENSEAL ***Depth:*** from 50.0 to 0.0

Installation Method: ***Number of bags used:*** 4.5

Well Abandonment

Sealing material: ***Depth:*** from to

Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 4E

Section: NE 1/4 of the NW 1/4 of the NW 1/4 of Section 18 ***Topo map:*** INDIANAPOLIS WEST

Field located by: JRB ***on:*** Tue, Nov 22, 1988

Courthouse location by: ***on:***

Location accepted w/o verification by: ***on:***

Subdivision name: ***Lot number:***

Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** 750 ***Ft S of NL:*** 100

Ground elevation: 743.0 ***Depth to bedrock:*** 133.0 ***Bedrock elevation:*** 610.0 ***Aquifier elevation:***

UTM Easting: 573810.8 ***UTM Northing:*** 4410131.0

Well Log

Top	Bottom	Formation
0.0	4.0	YEL CLAY
4.0	5.0	GRAV
5.0	12.0	YEL CLAY
12.0	17.0	GRAY CLAY
17.0	23.0	S & G STRIPS
23.0	29.0	S & FN GRAV
29.0	38.0	S & CRS G
38.0	41.0	SAND
41.0	43.0	S & G
43.0	44.0	SAND
44.0	47.0	ROCKS
47.0	58.0	S & MD TO CRS G
58.0	83.0	S & MD G

83.0	87.0	CRS G & S
87.0	100.0	MD S & G
100.0	104.0	CRS S & G
104.0	129.0	GRAY GRITTY CLAY
129.0	133.5	GRAV & CRS SAND
133.5	134.0	LS

Comments MC 610;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
265101		Sat, Feb 17, 1940

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS POWER & LIGHT CO.		
Building Contractor			
Drilling Contractor	LAYNE NORTHERN CO.	MISHAWAKA	
Equipment Operator	ROLAND HANSON	License:	

Construction Details

Well	*Use:*	*Drilling method:*	*Pump type:*
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test *Type of test:* *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: 1/4 of the 1/4 of the NE 1/4 of Section 11 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 706.0 *Depth to bedrock:* 82.0 *Bedrock elevation:* 624.0 *Aquifier elevation:*
UTM Easting: 571075.0 *UTM Northing:* 4401465.0

Well Log

Top	Bottom	Formation
0.0	25.0	HARD CLAY
25.0	27.0	CLAY & GRAV
27.0	30.0	MUDDY GRAV
30.0	40.0	GRAV & SAND
40.0	50.0	HARD GRITTY CLAY
50.0	66.0	SOFT BR CLAY
66.0	70.0	CRS SAND
70.0	80.0	S&G
80.0	82.0	MD SAND
82.0	84.0	SH

Comments COPIED FROM DRILLER'S LOG 11/16/95

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
180446	ON S. SIDE OF NEW YORK ST. , 500' W. OF BLAKE ST. IUPUI NATATORIUM - NEW SWIMMING POOL	Mon, Dec 01, 1980

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	IUPUI NATATORIUM	W. NEW YORK ST.	
Building Contractor	TOUSLEY-BIXLER	INDPLS,IN.	
Drilling Contractor	GREAT LAKES DEWATERING	MICHIGAN	
Equipment Operator		License:	

Construction Details

Well	*Use:* OTHER	*Drilling method:* ROTARY	*Pump type:*
	Depth: 50.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 50.0	*Material:*	*Diameter:* 8.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test *Type of test:* PUMPING *Test rate:* 1500.0 gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: 13.0 ft. *Static water level:* 16.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: SE 1/4 of the NW 1/4 of the SW 1/4 of Section 2 *Topo map:* INDIANAPOLIS WEST
Field located by: BRUNS *on:* Tue, Jan 08, 1980
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* 1800 *Ft E of WL:* 700 *Ft S of NL:*
Ground elevation: 695.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:* 635.0
UTM Easting: 570635.4 *UTM Northing:* 4402489.5

Well Log

Top	Bottom	Formation
0.0	0.0	NO INFORMATION

Comments SEE MAP ; DEWATERING WELLS ; CHEM. ANALYSES AVAILABLE ; 12 WELLS - 50' DEEP;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
53989	I U ADULT HOSPITAL LOCKE ST THE N WELL OF THREE WELLS AT COOLING TOWER	Fri, Aug 05, 1966

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANA UNIVERSITY MEDICAL	1100 W MICHIGAN ST INDIANAPOLIS	
Building Contractor			
Drilling Contractor	CLARK DRILLING CO	1015 E 28TH ST INDIANAPOLIS IND	
Equipment Operator		License:	

Construction Details

Well	*Use:* OTHER	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 399.33	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 99.0	*Material:*	*Diameter:* 16.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test *Type of test:* *Test rate:* 752.0 gpm for 3.5 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 12.0 ft. *Static water level:* 42.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: SW 1/4 of the NW 1/4 of the NW 1/4 of Section 2 *Topo map:* INDIANAPOLIS WEST
Field located by: DRH *on:* Mon, Aug 31, 1970
Courthouse location by: *on:*
Location accepted w/o verification by: HCK *on:* Thu, Sep 01, 1966
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 425 *Ft S of NL:* 1350
Ground elevation: 705.0 *Depth to bedrock:* 99.0 *Bedrock elevation:* 605.0 *Aquifer elevation:*
UTM Easting: 570544.9 *UTM Northing:* 4403136.0

Well Log

Top	Bottom	Formation
0.0	20.0	SANDY CLAY
20.0	97.0	S & G WATER AT 33'
97.0	98.5	CLAY
98.5	217.0	LS
217.0	235.0	SHALE & SS
235.0	390.0	SS
390.0	399.33	LS & SHALE

Comments MC 605

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
53990	W WELL AT COOLING TOWER WELL 3	Tue, Jan 24, 1967

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANA UNIVERSITY MEDICAL	I U ADULT HOSPITAL LOCKE & MICHIGAN STS INDPLS	
Building Contractor			
Drilling Contractor	CLARK DRILLING CO	1015 E 28TH ST INDIANAPOLIS IND	
Equipment Operator	WHITE	License:	

Construction Details

Well	*Use:* OTHER	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 401.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 99.0	*Material:*	*Diameter:* 16.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* 752.0 gpm for 2.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 6.0 ft. *Static water level:* 36.0 ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: SW 1/4 of the NW 1/4 of the NW 1/4 of Section 2 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 705.0 *Depth to bedrock:* 99.0 *Bedrock elevation:* 706.0 *Aquifier elevation:*
UTM Easting: 570475.0 *UTM Northing:* 4403125.0

Well Log

Top	Bottom	Formation
0.0	75.0	S & G WATER AT 33'
75.0	80.0	MUD & SAND
80.0	97.0	S & LARGER G
97.0	99.0	CLAY
99.0	110.0	BRN LS
110.0	180.0	HARD GRAY LS
180.0	195.0	SANDY GRAY LS
195.0	205.0	VERY HARD GRAY LS
205.0	220.0	SS
220.0	255.0	SANDY SHALE
255.0	280.0	HARD SS
280.0	315.0	VERY HARD SS

315.0	320.0	SHALE
320.0	395.0	LS
395.0	401.0	LS & SHALE
401.0	401.0	SHALE

Comments

	190.0	222.0	BRN LS
	222.0	225.0	GRAY SHALE
	225.0	255.0	SHALE & SS
	255.0	260.0	HARD SS
	260.0	270.0	SHALE & SS
	270.0	285.0	HARD SS
	285.0	320.0	HARD LS
	320.0	360.0	SOFT SS
	360.0	365.0	HARD BRN SS
	365.0	385.0	LS
	385.0	394.0	BRN SS
	394.0	398.0	SHALE

Comments MC 608

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
179980	5650' E. & 4850' N. OF SW. CORNER OF SECTION, 35' E. OF CENTER OF WILSON ST. & 300' S. OF CENTER OF W. 10TH. ST.	Wed, Apr 07, 1965

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MARION CO. GENERAL HOSPITAL		
Building Contractor			
Drilling Contractor	LAYNE-NORTHERN	MISHAWAKA,IN.	
Equipment Operator	E. WHEELER	License:	

Construction Details

Well	***Use:*** PUBLIC SUPPLY	***Drilling method:*** CABLE TOOL	***Pump type:***
	Depth: 95.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 75.0	***Material:***	***Diameter:*** 12.0
Screen	***Length:*** 20.0	***Material:***	***Diameter: Slot size:***

Well Capacity Test ***Type of test:*** PUMPING ***Test rate:*** 650.0 gpm for 24.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 14.0 ft. ***Static water level:*** 30.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 15N ***Range:*** 3E
Section: NE 1/4 of the NE 1/4 of the NE 1/4 of Section 3 ***Topo map:*** INDIANAPOLIS WEST
Field located by: DRH ***on:*** Mon, Aug 31, 1970
Courthouse location by: ***on:***
Location accepted w/o verification by: U ***on:*** Sat, May 01, 1965
Subdivision name: ***Lot number:***
Ft W of EL: 375 ***Ft N of SL:*** ***Ft E of WL:*** ***Ft S of NL:*** 600
Ground elevation: 705.0 ***Depth to bedrock:*** ***Bedrock elevation:*** 610.0 ***Aquifier elevation:***
UTM Easting: 570313.6 ***UTM Northing:*** 4403371.5

Well Log

Top	Bottom	Formation
0.0	1.0	TOPSOIL
1.0	30.0	S & G W/ CLAY
30.0	58.0	S & G MD TO LARGE
58.0	65.0	CLAY BLUE
65.0	95.0	S & G MD TO LARGE ACTIVE
95.0	0.0	LS

Comments ADDTL INFO STAPLED TO LOG ; WELL #2 ;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
180045	5200 FT E AND 4800 FT N OF SW CORNER OF SECTION 400 FT W OF WILSON ST 400 FT S OF 10TH ST 70 FT SW OF CORNER OF POWER PLANT	Fri, Apr 09, 1965

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MARION COUNTY GENERAL HOSPITAL		
Building Contractor			
Drilling Contractor	LAYNE NORTHERN	MISHAWAKA, IND	
Equipment Operator	EVERETT WHEELER	License:	

Construction Details

Well	*Use:* INDUSTRY	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 100.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 12.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 30.0 ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: NW 1/4 of the NE 1/4 of the NE 1/4 of Section 3 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: U *on:* Sat, May 01, 1965
Subdivision name: *Lot number:*
Ft W of EL: 800 *Ft N of SL:* *Ft E of WL:* *Ft S of NL:* 700
Ground elevation: 700.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:*
UTM Easting: 570160.9 *UTM Northing:* 4403326.5

Well Log

Top	Bottom	Formation
0.0	1.0	BLK TOP
1.0	11.0	FILL DIRT
11.0	24.0	CLAY YEL S & G
24.0	33.0	S & G MED TO LARGE
33.0	55.0	S & G SMALL TO MED
55.0	61.0	CLAY GRAY
61.0	65.0	S & G W/CLAY
65.0	75.0	S & G SMALL TO MED
75.0	100.0	S &G MED TO LARGE

Comments PUMPING TEST INFO STAPLED TO LOG; WELL 5

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
180050	165' W. OF CENTER OF WILSON ST. 450' S. OF CENTER OF W. 10TH. ST., 5450 ' E. & 4750 ' N. OF S.W. CORNER OF SECTION	Wed, Apr 14, 1965

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MARION COUNTY GENERAL HOSPITAL		
Building Contractor			
Drilling Contractor	LAYNE-NORTHERN CO.	MISHAWAKA,IN.	
Equipment Operator	E. WHEELER	License:	

Construction Details

Well	*Use:*	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 102.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 82.0	*Material:*	*Diameter:* 12.0
Screen	*Length:* 20.0	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: PUMPING *Test rate:* 650.0 gpm for 24.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 14.0 ft. *Static water level:* 30.0 ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: NE 1/4 of the NE 1/4 of the NE 1/4 of Section 3 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: U *on:* Sat, May 01, 1965
Subdivision name: *Lot number:*
Ft W of EL: 600 *Ft N of SL:* *Ft E of WL:* *Ft S of NL:* 750
Ground elevation: 700.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:*
UTM Easting: 570220.2 *UTM Northing:* 4403320.0

Well Log

Top	Bottom	Formation
0.0	1.0	TOPSOIL
1.0	30.0	S & G W/ BOULDERS & CLAY
30.0	48.0	S & G MD TO LARGE
48.0	55.0	CLAY
55.0	102.0	S & G SMALL TO LARGE
102.0	0.0	LS

Comments ADDTL INFO STAPLED TO LOG ; PUMPING TEST INFO STAPLED TO LOG ; WELL #3 ;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
179975	35' E. OF CENTER OF WILSON ST. & 100' S. OF CENTER OF W. 10TH. ST. , 5650' E. & 5050' N. OF SW. CORNER OF SEC.	Mon, Apr 05, 1965

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MARION CO. GENERAL HOSPITAL		
Building Contractor			
Drilling Contractor	LAYNE-NORTHERN CO.	MISHAWAKA,IN.	
Equipment Operator	E. WHEELER	License:	

Construction Details

Well	*Use:*	*Drilling method:*	*Pump type:*
	Depth: 96.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 12.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: PUMPING *Test rate:* 626.0 gpm for 24.0 hrs. *BailTest rate:* gpm for hrs.

Drawdown: 28.0 ft. *Static water level:* 30.0 ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E

Section: NE 1/4 of the NE 1/4 of the NE 1/4 of Section 3 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: HCK *on:* Thu, Apr 01, 1965

Subdivision name: *Lot number:*

Ft W of EL: 400 *Ft N of SL:* *Ft E of WL:* *Ft S of NL:* 400

Ground elevation: 705.0 *Depth to bedrock:* 95.0 *Bedrock elevation:* 610.0 *Aquifier elevation:*

UTM Easting: 570282.9 *UTM Northing:* 4403430.0

Well Log

Top	Bottom	Formation
0.0	48.0	S & G W/ CLAY
48.0	55.0	CLAY BLUE
55.0	64.0	S & G SMALL TO MD
64.0	95.0	S & G MD TO LARGE
95.0	96.0	LS

Comments ADDT'L INFO STAPLED TO LOG ; WELL #1 ; PLOTTED TO MARION CO.BEDROCK MAPS BY UCH 3/4/69;

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
180035	5200 FT E AND 4800 FT N OF SW CORNER OF SECTION 400 FT W OF WILSON ST 400 FT S OF 10TH ST 70 FT SW OF POWER HOUSE	Mon, Mar 15, 1965

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	MARION COUNTY GENERAL HOSPITAL		
Building Contractor			
Drilling Contractor	LAYNE NORTHERN	MISHAWAKA, IND	
Equipment Operator	EVERETT WHEELER	License:	

Construction Details

Well	*Use:*	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 110.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 12.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* 30.0 ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E

Section: NW 1/4 of the NE 1/4 of the NE 1/4 of Section 3 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: U *on:* Sat, May 01, 1965

Subdivision name: *Lot number:*

Ft W of EL: 800 *Ft N of SL:* *Ft E of WL:* *Ft S of NL:* 700

Ground elevation: 700.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:*

UTM Easting: 570146.3 *UTM Northing:* 4403336.5

Well Log

Top	Bottom	Formation
0.0	1.0	BLK TOP
1.0	11.0	FILL DIRT
11.0	24.0	CLAY YEL S & G
24.0	33.0	S & G MED TO LARGER
33.0	55.0	S & G SMALL TO MED
55.0	61.0	CLAY GRAY
61.0	65.0	S & G W/CLAY
65.0	75.0	S & G VERY ACTIVE SMALL TO MED
75.0	110.0	S & G VERY ACTIVE MED TO LARGE

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255258	JUST WEST OF WELL #9 AT RIVERSIDE STATION	Fri, Oct 25, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	NED O LOWELL C LEONARD F SAM	License: 329 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 80.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 74.0	*Material:*	*Diameter:* 4.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:* .060

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* 13.5 ft.

Grouting Information

Material: CEMENT *Depth:* from 60.0 to 0.0

Installation Method: *Number of bags used:* 9.0

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: NE 1/4 of the SW 1/4 of the SE 1/4 of Section 34 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: 1950 *Ft N of SL:* 700 *Ft E of WL:* *Ft S of NL:*

Ground elevation: 694.0 *Depth to bedrock:* 75.0 *Bedrock elevation:* 619.0 *Aquifier elevation:*

UTM Easting: 569797.5 *UTM Northing:* 4403759.0

Well Log

Top	Bottom	Formation
0.0	4.5	BRN CLAY
4.5	38.0	BRN SAND & MED BRN GRAVEL
38.0	43.5	GREY CLAY
43.5	46.0	SAND & MEDIUM GRAVEL
46.0	52.0	GREY CLAY
52.0	65.0	SAND & FINE GRAVEL
65.0	75.0	SAND & MEDIUM-BIG GRAVEL
75.0	80.0	GREY LS

Comments (DPR 91-16 OW IGS GAMMA LOG 91-524 AVAILABLE)(MC 619)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255259	ABOUT 50' N OF WATERWAY BOULEVARD, AND 50' E OF RAILROAD TRAKS AT HERDING ST	Mon, Oct 28, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS INDIANA 46206	(317)263-6351
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	LOWELL C SAM R LEONARD F	License: 329 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 90.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BNSL *Depth:* from 90 to 1

Installation Method: *Number of bags used:* 6

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: SW 1/4 of the NW 1/4 of the SE 1/4 of Section 34 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: 2000 *Ft N of SL:* 1200 *Ft E of WL:* *Ft S of NL:*

Ground elevation: 695.0 *Depth to bedrock:* 85.0 *Bedrock elevation:* 610.0 *Aquifier elevation:*

UTM Easting: 569754.2 *UTM Northing:* 4404091.5

Well Log

Top	Bottom	Formation
0.0	4.0	BRN CLAY
4.0	14.0	SAND & FN-MED GRAVEL
14.0	27.0	SAND & MED GRAVEL
27.0	37.0	SAND
37.0	44.5	SAND & FN-MED GRAVEL
44.5	52.0	GREY CLAY
52.0	53.0	SAND & MEDIUM GRAVEL
53.0	57.0	GREY CLAY
57.0	84.5	SAND & MEDIUM-BIG GRAVEL
84.5	90.0	GREY LS

Comments (DPR 91-17)(MC610)

RECORD OF WATER WELL

State Form 35680 (R4 / 4-92)

Mail complete record within 30 days to:
INDIANA DEPARTMENT OF NATURAL RESOURCES
Division of Water
402 W.Washington St., Rm. W264
Indianapolis, IN 46204
(317) 232-4160

Fill in completely

WELL LOCATION

County where drilled	Civil township	Township	Range	Section
MARION				

Driving directions to the well location (*include county road names, number, subdivision lot number with consideration to intersecting road and trip origination*). There is space for a map on reverse side.

Approximately 200 ft North of 16th Street, and 20 ft West of Gent Avenue

OWNER - CONTRACTOR

Name of well owner: Indianapolis Water Company
Telephone number: 317-263-6361

Address (*number and street, city, state, ZIP code*): 1220 Waterway Blvd Indianapolis IN 46206

Name of building contractor:
Telephone number:

Address (*number and street, city, state, ZIP code*):

Name of drilling contractor: Ortman Drilling Inc
Telephone number: 317-459-4125

Address (*number and street, city, state, ZIP code*): 241N Co Rd 300W Kokomo IN 46901

Name of equipment operator: Dick O Russell Mc Van K
License number: 330 1036
Date of completion: 3/21/95

CONSTRUCTION DETAILS

Use of well:
☐ Home ☐ Industry ☐ Test ☐ Irrigation
☒ Public supply ☐ Stock ☐ Other (*specify*):

Method of drilling
☒ Rotary ☐ Jet ☐ Bucket rig
☐ Cable tool ☐ Rev. rotary ☐ Other

Casing length	Material	Diameter
77' + 2' up	.375 steel	16 inches
Screen length	**Material**	**Diameter**
20 feet	Stainless steel	16 inches

Screen slot size	Total depth of well
.080	97 ft
Depth of pump setting	**Water quality (*clear, cloudy, odor, etc.*)**

Type of pump
☐ Submersible ☐ Shallow-well jet ☐ Deep-well jet ☐ Other (*specify*):

WELL CAPACITY TEST

Check one
☐ Bailing ☐ Air ☒ Pumping

Test rate: _____ gpm _____ hrs.

Drawdown: feet

Static level: (*depth of water*) feet

GROUTING INFORMATION

Grout material	Depth of grout	Sealing material	Depth filled
Benseal	From 50 to 14		From To
Method of installation	**Number of bags used**	**Method of installation**	**Number of bags used**
	10		

WELL ABANDONMENT

WELL LOG

FORMATIONS: Type of material	From (*feet*)	To (*feet*)
Brown clay	0	7
Sand & fine-med gravel	7	25
Sand & fine gravel	25	30
Sand & light clay	30	35
Light sand & med-big gravel	35	41
Grey clay	41	54
Sand & F-M gravel (72'-75' sand)	54	96
Grey limestone	96	100
Gravel Pack: # 3 Northern	97	50
Silica gravel 3 cu.	yd	
Cement 6 sacks	14	10
(*Additional space for well log on reverse side*)		

I hereby swear or affirm, under the penalties for perjury that the information submitted herewith is to the best of my knowledge and belief, true, accurate and complete.

Signature of owner or authorized representative:

Date: 3-29-95

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255260	APPROX 200' N OF 16TH ST AND 20' W OF GENT AVE	Wed, Oct 30, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	RICK O LOWELL C SAM R LEONARD	License: 3303291035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* ROTARY	*Pump type:*
	Depth: 100.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test — *Type of test:* — *Test rate:* gpm for hrs. — *BailTest rate:* gpm for hrs.
Drawdown: ft. — *Static water level:* ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* BNSL — *Depth:* from 95 to 0
Installation Method: — *Number of bags used:* 6

Administrative

County: MARION — *Township:* 16N *Range:* 3E
Section: SE 1/4 of the SW 1/4 of the NE 1/4 of Section 34 — *Topo map:* INDIANAPOLIS WEST
Field located by: — *on:*
Courthouse location by: — *on:*
Location accepted w/o verification by: RS — *on:*
Subdivision name: — *Lot number:*
Ft W of EL: 1400 — *Ft N of SL:* — *Ft E of WL:* — *Ft S of NL:* 2300
Ground elevation: 695.0 — *Depth to bedrock:* 96.0 — *Bedrock elevation:* 599.0 — *Aquifier elevation:*
UTM Easting: 569959.8 — *UTM Northing:* 4404451.5

Well Log

Top	Bottom	Formation
0.0	7.0	BRN CLAY
7.0	25.0	SAND & F-M GRAVEL
25.0	30.0	SAND & FN GRAVEL
30.0	35.0	SAND & LIGHT CLAY
35.0	41.0	LIGHT SAND & MED-BIG GRAVEL
41.0	54.0	GREY CLAY
54.0	96.0	SAND & F-M GRAVEL 72'-75' SAND
96.0	100.0	GREY LS

Comments (DPR 91-18 IGS GAMMA LOG 91-526 AVAILABLE)(MC 599)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255257	APPROX 300' W OF E RIVERSIDE DR, AND DIRECLTY W AND IN LINE WITH 21ST STREET	Thu, Oct 24, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	NED O LOWELL C LEONARD F SAM	License: 329 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 80.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter:* *Slot size:*

Well Capacity Test — *Type of test:* — *Test rate:* gpm for hrs. — *BailTest rate:* gpm for hrs.
Drawdown: ft. — *Static water level:* ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* BNSL — *Depth:* from 80 to 0
Installation Method: — *Number of bags used:* 7

Administrative

County: MARION — *Township:* 16N *Range:* 3E
Section: NE 1/4 of the NW 1/4 of the NW 1/4 of Section 34 — *Topo map:* INDIANAPOLIS WEST
Field located by: — *on:*
Courthouse location by: — *on:*
Location accepted w/o verification by: RS850 — *on:*
Subdivision name: — *Lot number:*
Ft W of EL: — *Ft N of SL:* — *Ft E of WL:* — *Ft S of NL:* 100
Ground elevation: 694.0 — *Depth to bedrock:* 77.0 — *Bedrock elevation:* 617.0 — *Aquifer elevation:*
UTM Easting: 568990.9 — *UTM Northing:* 4405101.0

Well Log

Top	Bottom	Formation
0.0	8.0	BRN CLAY
8.0	14.0	GREY CLAY
14.0	40.0	SAND & FN -MED GRAVEL
40.0	45.0	MED-LG S&G
45.0	77.0	FN S&G
77.0	80.0	GREY LS

Comments (DPR 91-15 IGS GAMMA LOG 91-520 AVAILABLE)(MC 617)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255252	APPROX 50' W OF E RIVERSIDE DR AND IN LINE WITH ORACHE ST	Tue, Oct 22, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDPLS WATER CO	1220 WATERWAY BLVD, INDPLS, IN 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING INC	241 N, 300W, KOKOMO, IN 46901	(317)459-4125
Equipment Operator	NED O, LOWELL C, LEONARD F	License: 329, 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* ROTARY	*Pump type:*
	Depth: 100.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BNSL & HOLEPLUG *Depth:* from 100 to 0
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: SW 1/4 of the SE 1/4 of the NW 1/4 of Section 27 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: RS *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 1450 *Ft S of NL:* 2000
Ground elevation: 701.0 *Depth to bedrock:* 96.0 *Bedrock elevation:* 605.0 *Aquifier elevation:*
UTM Easting: 569178.2 *UTM Northing:* 4406150.0

Well Log

Top	Bottom	Formation
0.0	3.5	BR CLAY
3.5	14.0	M-BIG GRAV & SOME SAND
14.0	17.0	GRAY CLAY
17.0	17.5	SAND
17.5	50.0	GRAY CLAY
50.0	58.0	LT GRAY & GRN CLAY W/WOOD
58.0	60.0	STONE
60.0	72.0	BR CLAY
72.0	75.0	SAND
75.0	81.0	BROKEN STONE & GRAY CLAY
81.0	92.0	BLUISH GRAY CLAY

Comments DPR 91-11; IGS GAMMA LOG 91-514 AVAILABLE; MC 605

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255253	ABOUT 500' W OF E RIVERSIDE DR, AND IN LINE WITH ROACHE STREE	Fri, Oct 18, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC.	241 NORTH 300 WEST, KOKOMO, INDIANA 46901	(317)459-4125
Equipment Operator	RICK O LOWELL C SAM R LEONARD	License: 3303291035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 90.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BNSL *Depth:* from 75 to 0

Installation Method: *Number of bags used:* 6

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: SE 1/4 of the SW 1/4 of the NW 1/4 of Section 27 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* 875 *Ft S of NL:* 2000

Ground elevation: 693.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:*

UTM Easting: 568983.7 *UTM Northing:* 4406142.0

Well Log

Top	Bottom	Formation
0.0	4.0	BRN CLAY
4.0	9.5	SAND & MED TO BIG GRAVEL
9.5	12.0	GREY CLAY
12.0	13.0	SAND & M-F GRAVEL
13.0	15.0	GREY CLAY
15.0	22.0	SAND & LIGHT FN GRAVEL
22.0	35.0	GREY CLAY
35.0	39.0	SAND & GRAVEL & CLAY SEAM
39.0	55.0	GREENISH-BLUE CLAY
55.0	62.0	S&G
62.0	66.0	BRN SAND CLAY & BROKEN LIME
66.0	66.5	BROKEN GREY STONE

Comments (DPR 91-9 IGS GAMMA LOG 91-516 AVAILABLE MC 620)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255255	JUST W OF E RIVERSIDE DR BETWEEN 29TH & 30TH ST IN PARK	Thu, Oct 17, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC.	241 NORTH 300 WEST, KOKOMO, INDIANA 46901	(317)459-4125
Equipment Operator	RICK O LOWELL C SAM R LEONARD	License: 3303291035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 65.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test *Type of test:* *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* BNSL *Depth:* from 60 to 0
Installation Method: *Number of bags used:* 3

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: NW 1/4 of the NE 1/4 of the NW 1/4 of Section 27 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: RS *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 1450 *Ft S of NL:* 500
Ground elevation: 700.0 *Depth to bedrock:* 59.0 *Bedrock elevation:* 641.0 *Aquifier elevation:*
UTM Easting: 569145.0 *UTM Northing:* 4406625.5

Well Log

Top	Bottom	Formation
0.0	3.0	SANDY BRN CLAY
3.0	6.0	REDDISH BRN CLAY
6.0	11.0	MED TO COARSE LOOSE ROUND GRAV
11.0	12.0	BOULDER
12.0	18.0	M-C BRN GRAVEL
18.0	18.5	YEL BRN SANDY CLAY
18.5	20.5	M-C YEL BRN GRAVEL
20.5	31.0	SANDY YEL BRN CLAY
31.0	35.0	M-C SAND & F GRAVEL YEL BRN
35.0	38.0	YEL BRN SANDY CLAY
38.0	40.0	GREY CLAY
40.0	46.0	SANDY YEL BRN CLAY

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255246	LOCATED AT E END OF SOAP BOX DERBY RACETRACK AT 30TH ST & WH RIVER PARKWAY SOR21	Fri, Oct 18, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST, KOKOMO, INDIANA 46901	(317)459-4125
Equipment Operator	RICK O LOWELL C SAM R LEONARD	License: 3323291035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* ROTARY	*Pump type:*
	Depth: 75.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 76.0	*Material:*	*Diameter:* 4.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: AIR *Test rate:* 90.0 gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 2.0 ft.

Grouting Information

Material: BNSL & CMNT *Depth:* from 65.0 to 0.0
Installation Method: *Number of bags used:* 8.0

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: SW 1/4 of the SW 1/4 of the SW 1/4 of Section 22 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by; *on:*
Location accepted w/o verification by: RS *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* 200 *Ft E of WL:* 160 *Ft S of NL:*
Ground elevation: 693.0 *Depth to bedrock:* 75.0 *Bedrock elevation:* 618.0 *Aquifier elevation:*
UTM Easting: 568778.1 *UTM Northing:* 4406804.5

Well Log

Top	Bottom	Formation
0.0	2.0	SILTY BRN CLAY
2.0	7.0	SANDY YEL BRN CLAY
7.0	10.0	DIRTY F-C SAND F-M GRAVEL
10.0	14.0	M-C RED BRN GRAVEL
14.0	20.0	F-M GREY SAND
20.0	30.0	F-M GREY SAND THIN LAYERS F-M
30.0	42.0	SOFT SILTY GREY CLAY
42.0	44.5	F-M GREY SAND TRACE OF GRAVEL
44.5	47.0	GREY CLAY
47.0	75.0	C GREY SAND & F GRAVEL
75.0	80.0	LIGHT TAN LS

Comments (DPR 91-7OW)(IGS GAMMA LOG 91-510 AVAILABLE)(MC618)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255247	AT SOAP BOX DERBY RACETRACK APPROX 100FT N OF 30TH ST & 800' W OF WHITE RIVER	Mon, Oct 21, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC.	241 NORTH 300 WEST, KOKOMO, INDIANA 46901	(317)459-4125
Equipment Operator	NED O LOWELL C LEONARD F SAM	License: 329 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 75.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BNSL HOLE PLUG *Depth:* from 75 to 0

Installation Method: *Number of bags used:* 10

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: SE 1/4 of the SE 1/4 of the SE 1/4 of Section 21 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: 400 *Ft N of SL:* 200 *Ft E of WL:* *Ft S of NL:*

Ground elevation: 697.0 *Depth to bedrock:* 70.0 *Bedrock elevation:* 627.0 *Aquifier elevation:*

UTM Easting: 568596.9 *UTM Northing:* 4406824.0

Well Log

Top	Bottom	Formation
0.0	7.0	BRN CLAY
7.0	19.0	S& M-BIG G
19.0	20.0	BRN CLAY
20.0	34.0	F SAND & SOME CLAY
34.0	50.0	GREY SEALDY CLAY
50.0	69.5	SAND & M-SMALL GRAVEL
69.5	75.0	GREY LS

Comments

(DPR 91-6)(MC627)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63854	50' N OF 21ST ST E SIDE OF PROPERTY	Wed, Apr 19, 1972

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	ALUMINUM FINISHING CORP	1012 E 21ST ST INDPLS IN	
Building Contractor			
Drilling Contractor	LAYNE NORTHERN COMPANY	MISHAWAKA	
Equipment Operator	EWING ALLEN	License:	

Construction Details

Well	*Use:*	*Drilling method:*	*Pump type:*
	Depth: 62.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 48.5	*Material:*	*Diameter:* 12.0
Screen	*Length:* 15.0	*Material:*	*Diameter:* 12.0 *Slot size:* .050

Well Capacity Test *Type of test:* *Test rate:* 837.0 gpm for 5.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 11.0 ft. *Static water level:* 32.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: SE 1/4 of the SW 1/4 of the SE 1/4 of Section 25 *Topo map:* INDIANAPOLIS WEST
Field located by: RS *on:* Tue, Aug 01, 1972
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: 100 *Ft N of SL:* 200 *Ft E of WL:* *Ft S of NL:*
Ground elevation: 725.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:* 665.0
UTM Easting: 573588.6 *UTM Northing:* 4405294.0

Well Log

Top	Bottom	Formation
0.0	3.0	CLAY
3.0	26.0	HARD PACKED GRAVEL
26.0	31.0	BLUE CLAY
31.0	36.0	FN SAND
36.0	50.0	MED S&G
50.0	62.0	COARSE S&G

Comments (MC)(VERIFICATION BY EMPLOYEE)(CASING EXTENDS 1.5 FT ABOVE GROUND)(ADD DATA ATTACHED TO ORIGINAL RECORD)

Reference 129 Page 233

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63847	2179 N. ILLINOIS STREET, INDIANAPOLIS IND	Wed, Nov 30, 1960

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	PILGRIM LAUNDRY	2179 N. ILLINOIS STREET	
Building Contractor			
Drilling Contractor	CLARK DRILLING CO.	1015 EAST 28TH STREET, INDIANAPOLIS 5, IND	
Equipment Operator		License:	

Construction Details

Well	*Use:* INDUSTRY	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 267.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 73.33	*Material:*	*Diameter:* 8.0
Screen	*Length:* 15.0	*Material:*	*Diameter:* 8.0 *Slot size:* 40

Well Capacity Test

Type of test: *Test rate:* 335.0 gpm for 4.5 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 25.0 ft. *Static water level:* 23.0 ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: SW 1/4 of the SW 1/4 of the SW 1/4 of Section 25 *Topo map:* INDIANAPOLIS WEST
Field located by: JMH *on:* Thu, Jan 05, 1961
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* 450 *Ft E of WL:* 50 *Ft S of NL:*
Ground elevation: 710.0 *Depth to bedrock:* 90.0 *Bedrock elevation:* 620.0 *Aquifier elevation:*
UTM Easting: 572014.5 *UTM Northing:* 4405327.0

Well Log

Top	Bottom	Formation
0.0	4.0	FILL
4.0	33.0	YEL DRY GRAV
33.0	58.0	WATER GRAV
58.0	60.0	GRAY CLAY
60.0	66.0	HARD GRAV
66.0	88.0	CRS WATER GRAV
88.0	90.0	GRAV & ROCKS
90.0	100.0	LIMESTONE - SAND DEPOSITS
100.0	101.0	CREVICE
101.0	140.0	LIMESTONE - HARD
140.0	205.0	LIMESTONE BROWN HARD
205.0	230.0	LIMESTONE GREY HARD
230.0	232.0	BLUE SHALE

	232.0	267.0	LIMESTONE - BLUE HARD
Comments	CHEM DATE AVAILABLE		

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63791	2000 NORTHWESTERN AVE	Mon, May 03, 1976

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	POLAR ICE CO INC.		
Building Contractor			
Drilling Contractor	HAMILTON BROS INC.	PO BOX 24181 INDPLS IND. 46224	
Equipment Operator	LESTER HARNESS	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* ROTARY	*Pump type:*
	Depth: 140.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 94.0	*Material:*	*Diameter:* 10.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* 375.0 gpm for 1.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 80.0 ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: SW 1/4 of the NE 1/4 of the NW 1/4 of Section 35 *Topo map:* INDIANAPOLIS WEST
Field located by: WDH *on:* Sun, Jan 26, 1986
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 2300 *Ft S of NL:* 800
Ground elevation: 705.0 *Depth to bedrock:* 94.0 *Bedrock elevation:* 611.0 *Aquifer elevation:*
UTM Easting: 571060.2 *UTM Northing:* 4404975.0

Well Log

Top	Bottom	Formation
0.0	94.0	S&G
94.0	140.0	LS

Comments (O.V. 10FT S OF BUILDING)(MC)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64918	SOUTHEAST CORNER OF WHITE RIVER, WATER CO PLANT PROPERTY	Fri, Mar 15, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	IND GEOLOGICAL SURVEY	(DON EGGERT)	(812)855-1366
Building Contractor	INDPLS WATER CO PROPERTY		
Drilling Contractor	DEAN WELL DRILLING INC	841 W SUMNER AVE INDPLS IN 46217	(817)787-4146
Equipment Operator	JOHN AUFDERHEIDE	License: 231	

Construction Details

Well	*Use:* TEST	*Drilling method:* ROTARY	*Pump type:*
	Depth: 82.5	*Pump setting depth:*	*Water quality:* CLEAR
Casing	*Length:* 77.5	*Material:* PVC	*Diameter:* 3.0
Screen	*Length:* 5.0	*Material:* PVC	*Diameter:* 3.0 *Slot size:* .030

Well Capacity Test

Type of test: AIR *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 16.3 ft.

Grouting Information

Material: BENT *Depth:* from 0.0 to 73.0
Installation Method: TREM *Number of bags used:* 5.0

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: NE 1/4 of the SE 1/4 of the NW 1/4 of Section 35 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: RS-PER T BRUNS, IWC *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 2100 *Ft S of NL:* 1400
Ground elevation: 705.0 *Depth to bedrock:* 81.0 *Bedrock elevation:* 624.0 *Aquifier elevation:*
UTM Easting: 571006.4 *UTM Northing:* 4404755.5

Well Log

Top	Bottom	Formation
0.0	8.0	DARK BRN SANDY CLAY
8.0	10.5	GUMMY YEL CLAY
10.5	30.0	S & G
30.0	40.0	S & G
40.0	45.0	S & G W/ TAN CLAY LENS
45.0	70.0	S & G
70.0	75.0	S & G,SOME BRN CLAY
75.0	80.0	S & G
80.0	81.0	SOFT WEATHER LS
81.0	84.0	FIRM GRAY LS

Comments SIGNS OF WATER LEVEL FLUC IN S & G AT 10.5-30'

WELL # 9 (W/R)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
177501	WHITE RIVER STATION FILTRATION PLANT - 150 FT. SOUTH OF #1 WELL AND 150 FEET E OF MICHIGAN AUTO PART ROAD., 940 W. 16TH	Wed, Nov 20, 1974

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER CO.		
Building Contractor			
Drilling Contractor	LAYNE NORTHERN	INDIANAPOLIS IN	
Equipment Operator	WILLIAM WELLS	License:	

Construction Details

Well	*Use:*	*Drilling method:* REVERSE ROTARY	*Pump type:*
	Depth: 79.5	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 81.0	*Material:*	*Diameter:* 30.0
Screen	*Length:* 20.0	*Material:*	*Diameter:* 30.0 *Slot size:* 5.5

Well Capacity Test — *Type of test:* — *Test rate:* gpm for hrs. — *BailTest rate:* gpm for hrs.
Drawdown: ft. — *Static water level:* 13.0 ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Administrative

County: MARION — *Township:* 16N *Range:* 3E
Section: SW 1/4 of the NW 1/4 of the NW 1/4 of Section 35 — *Topo map:* INDIANAPOLIS WEST
Field located by: WDH — *on:* Mon, Jul 26, 1976
Courthouse location by: — *on:*
Location accepted w/o verification by: — *on:*
Subdivision name: — *Lot number:*
Ft W of EL: — *Ft N of SL:* — *Ft E of WL:* 500 — *Ft S of NL:* 850
Ground elevation: 700.0 — *Depth to bedrock:* 79.0 — *Bedrock elevation:* 721.0 — *Aquifier elevation:*
UTM Easting: 570539.4 — *UTM Northing:* 4404910.0

Well Log

Top	Bottom	Formation
0.0	10.0	SAND & MED. GRAV
10.0	15.0	CRS. GRAV
15.0	21.0	MED. GRAV
21.0	25.0	CLAY & BOULDERS HARD GRAY ST.
25.0	35.0	CRS. GRAV SAME BOULDERS
35.0	42.0	MED. GRAV, SAME BOULDERS
42.0	55.0	HARD DRY GRITTY GRAY CLAY
55.0	63.0	CRS. SAND & GRAVEL
63.0	79.5	CRS. GRAVEL W/ MED./FINE SAND
79.5	0.0	HARD BROWN ROCK

Comments MC

Reference 129 **Page 238** (WELL #10 (WE) Abandoned

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255265	700' N OF 16TH ST & 410' E OF AQUEDUCT DR	Fri, Dec 23, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER CO		
Building Contractor			
Drilling Contractor	BASTIN LOGAN WATER SERV INC	237 W MONROE ST PO BOX 55 FRANKLIN, IN 46131	(317)738-4577
Equipment Operator	DELFORD DUNN	License:	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 67.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 53.0	*Material:*	*Diameter:* 24.0
Screen	*Length:* 14.0	*Material:* SS	*Diameter:* 24.0 *Slot size:* .060+.120

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* 11.0 ft.

Grouting Information

Material: BENTONITE *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: NW 1/4 of the SW 1/4 of the NW 1/4 of Section 35 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* 600 *Ft S of NL:* 1750

Ground elevation: 695.0 *Depth to bedrock:* 68.0 *Bedrock elevation:* 627.0 *Aquifier elevation:*

UTM Easting: 570555.9 *UTM Northing:* 4404642.5

Well Log

Top	Bottom	Formation
0.0	2.0	BRN CLAY
2.0	12.0	FN MED COARSE S&G W/ LG RED RO
12.0	30.0	FN MED COARSE S&G REDDISH
30.0	37.0	FN MED COARSE SAND
37.0	41.0	FN MED COARSE S&G
41.0	52.0	HARD GRITTY GRAY CLAY
52.0	53.0	FN MED COARSE S&G
53.0	57.0	VERY SANDY GRAY CLAY
57.0	67.5	FN MED COARSE S&G
67.5	0.0	LS

Comments (WELL NO 10 PROJ NO 840-F)(MC 627)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255257	APPROX 300' W OF E RIVERSIDE DR, AND DIRECLTY W AND IN LINE WITH 21ST STREET	Thu, Oct 24, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	NED O LOWELL C LEONARD F SAM	License: 329 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 80.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BNSL *Depth:* from 80 to 0

Installation Method: *Number of bags used:* 7

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: NE 1/4 of the NW 1/4 of the NW 1/4 of Section 34 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS850 *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:* 100

Ground elevation: 694.0 *Depth to bedrock:* 77.0 *Bedrock elevation:* 617.0 *Aquifer elevation:*

UTM Easting: 568990.9 *UTM Northing:* 4405101.0

Well Log

Top	Bottom	Formation
0.0	8.0	BRN CLAY
8.0	14.0	GREY CLAY
14.0	40.0	SAND & FN -MED GRAVEL
40.0	45.0	MED-LG S&G
45.0	77.0	FN S&G
77.0	80.0	GREY LS

Comments (DPR 91-15 IGS GAMMA LOG 91-520 AVAILABLE)(MC 617)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
121644	SOUTH GROVE MUNICIPAL GOLF COURSE 18TH ST & RIVERSIDE DR INDPLS	Mon, Jul 25, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	U.S. GEOLOGICAL SURVEY	5957 LAKESIDE BLVD INDPLS IN 46278	(317)290-3333
Building Contractor			
Drilling Contractor	ORTMAN DRILLING INC	241 N CR 300W KOKOMO IN 46901	(317)459-4125
Equipment Operator	NED O JOHN W RICHARD R DAVE N	License:	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth: 74.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 68.5	*Material:* PVC	*Diameter:* 6.0
Screen	*Length:* 5.5	*Material:*	*Diameter: Slot size:* .060SS

Well Capacity Test — *Type of test:* AIR; *Test rate:* 150.0 gpm for hrs.; *BailTest rate:* gpm for hrs.
Drawdown: ft.; *Static water level:* 8.9 ft.

Grouting Information — *Material:*; *Depth:* from to
Installation Method:; *Number of bags used:*

Well Abandonment — *Sealing material:*; *Depth:* from to
Installation Method:; *Number of bags used:*

Administrative

County: MARION; *Township:* 16N *Range:* 3E
Section: SE 1/4 of the NE 1/4 of the NE 1/4 of Section 33; *Topo map:* INDIANAPOLIS WEST
Field located by: JRB; *on:* Mon, Jul 25, 1988
Courthouse location by:; *on:*
Location accepted w/o verification by:; *on:*
Subdivision name:; *Lot number:*
Ft W of EL: 450; *Ft N of SL:*; *Ft E of WL:*; *Ft S of NL:* 1700
Ground elevation: 700.0; *Depth to bedrock:*; *Bedrock elevation:*; *Aquifier elevation:*
UTM Easting: 567020.0; *UTM Northing:* 4404554.0

Well Log

Top	Bottom	Formation
0.0	5.0	SANDY SILT
5.0	15.0	S & G
15.0	34.5	GRAY CLAY
34.5	37.0	S & G
37.0	55.0	GRAY CLAY
55.0	60.0	SAND & FINE GRAV & CLAY
60.0	62.5	GRAY CLAY & SAND
62.5	63.5	GRAY CLAY
63.5	74.5	S & G
74.5	76.0	PEET MOSS

Comments OBS MA-37, #88-102, BNSL GROUT FROM 62 FT, 5 SACKS PRESSURE GROUT 1 INCH TRIMMIE PIPE 9 7/8 BIT

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
67027	50' N OF FALL CREEK 25' S OF FALL CREEK BLVD & 1500' E OF MERIDIAN ST	Fri, Oct 26, 1984

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	DEPT PUBLIC WORKS		
Building Contractor			
Drilling Contractor	LAYNE NORTHERN COMPANY		
Equipment Operator	JOHN AUFDERHEIDE	License:	

Construction Details

Well	*Use:*	*Drilling method:* ROTARY	*Pump type:*
	Depth:	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 59.0	*Material:*	*Diameter:* 2.0
Screen	*Length:* 20.0	*Material:*	*Diameter:* 20.0 *Slot size:*

Well Capacity Test *Type of test:* *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 22.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: NE 1/4 of the SE 1/4 of the NW 1/4 of Section 25 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: PKG 110184 *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 2200 *Ft S of NL:* 1550
Ground elevation: 705.0 *Depth to bedrock:* 88.0 *Bedrock elevation:* 617.0 *Aquifer elevation:* 639.0
UTM Easting: 572673.8 *UTM Northing:* 4406372.5

Well Log

Top	Bottom	Formation
0.0	11.0	TOPSOIL & CLAY
11.0	66.0	COARSE SAND MED TO COARSE GRAV
66.0	88.0	BRN CLAY
88.0	0.0	WH LS

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
173144	2901 N. MERIDIAN ST.	Tue, Aug 01, 1978

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	LILLY ENDOWMENT		
Building Contractor	F. C. TUCKER INC. AGENT		
Drilling Contractor	HAMILTON BROS., INC.	P.O. BOX 34161, INDIANAPOLIS IN	
Equipment Operator	EDMUND RANDOLPH	License:	

Construction Details

Well	***Use:***	***Drilling method:*** ROTARY	***Pump type:***
	Depth: 277.0	***Pump setting depth:***	***Water quality:***
Casing	***Length:*** 94.0	***Material:***	***Diameter:*** 12.0
Screen	***Length:*** 20.0	***Material:***	***Diameter:*** 12.0 ***Slot size:*** 60

Well Capacity Test ***Type of test:*** ***Test rate:*** 400.0 gpm for 2.0 hrs. ***BailTest rate:*** gpm for hrs.
Drawdown: 35.0 ft. ***Static water level:*** 43.0 ft.

Grouting Information ***Material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Well Abandonment ***Sealing material:*** ***Depth:*** from to
Installation Method: ***Number of bags used:***

Administrative

County: MARION ***Township:*** 16N ***Range:*** 3E
Section: SE 1/4 of the NW 1/4 of the NW 1/4 of Section 25 ***Topo map:*** INDIANAPOLIS WEST
Field located by: DPM ***on:*** Fri, Sep 11, 1981
Courthouse location by: ***on:***
Location accepted w/o verification by: ***on:***
Subdivision name: ***Lot number:***
Ft W of EL: ***Ft N of SL:*** ***Ft E of WL:*** 100 ***Ft S of NL:*** 1200
Ground elevation: 704.0 ***Depth to bedrock:*** 92.0 ***Bedrock elevation:*** 612.0 ***Aquifier elevation:***
UTM Easting: 572249.0 ***UTM Northing:*** 4406436.5

Well Log

Top	Bottom	Formation
0.0	7.0	TOPSOIL & CLAY
7.0	92.0	GRAV
92.0	277.0	LIMESTONE

Comments MC; WELL IS NE CORNER OF BLDG.; WELL USED FOR COOLING OR BOILING

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
63791	2000 NORTHWESTERN AVE	Mon, May 03, 1976

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	POLAR ICE CO INC.		
Building Contractor			
Drilling Contractor	HAMILTON BROS INC.	PO BOX 24181 INDPLS IND. 46224	
Equipment Operator	LESTER HARNESS	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* ROTARY	*Pump type:*
	Depth: 140.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 94.0	*Material:*	*Diameter:* 10.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* 375.0 gpm for 1.0 hrs. *BailTest rate:* gpm for hrs.

Drawdown: 80.0 ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: SW 1/4 of the NE 1/4 of the NW 1/4 of Section 35 *Topo map:* INDIANAPOLIS WEST

Field located by: WDH *on:* Sun, Jan 26, 1986

Courthouse location by: *on:*

Location accepted w/o verification by: *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* 2300 *Ft S of NL:* 800

Ground elevation: 705.0 *Depth to bedrock:* 94.0 *Bedrock elevation:* 611.0 *Aquifier elevation:*

UTM Easting: 571060.2 *UTM Northing:* 4404975.0

Well Log

Top	Bottom	Formation
0.0	94.0	S&G
94.0	140.0	LS

Comments (O.V. 10FT S OF BUILDING)(MC)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
64918	SOUTHEAST CORNER OF WHITE RIVER, WATER CO PLANT PROPERTY	Fri, Mar 15, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	IND GEOLOGICAL SURVEY (DON EGGERT)		(812)855-1366
Building Contractor	INDPLS WATER CO PROPERTY		
Drilling Contractor	DEAN WELL DRILLING INC	841 W SUMNER AVE INDPLS IN 46217	(817)787-4146
Equipment Operator	JOHN AUFDERHEIDE	License: 231	

Construction Details

Well	*Use:* TEST	*Drilling method:* ROTARY	*Pump type:*
	Depth: 82.5	*Pump setting depth:*	*Water quality:* CLEAR
Casing	*Length:* 77.5	*Material:* PVC	*Diameter:* 3.0
Screen	*Length:* 5.0	*Material:* PVC	*Diameter:* 3.0 *Slot size:* .030

Well Capacity Test

Type of test: AIR *Test rate:* gpm for hrs. *Bail Test rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 16.3 ft.

Grouting Information

Material: BENT *Depth:* from 0.0 to 73.0
Installation Method: TREM *Number of bags used:* 5.0

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: NE 1/4 of the SE 1/4 of the NW 1/4 of Section 35 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: RS-PER T BRUNS, IWC *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 2100 *Ft S of NL:* 1400
Ground elevation: 705.0 *Depth to bedrock:* 81.0 *Bedrock elevation:* 624.0 *Aquifier elevation:*
UTM Easting: 571006.4 *UTM Northing:* 4404755.5

Well Log

Top	Bottom	Formation
0.0	8.0	DARK BRN SANDY CLAY
8.0	10.5	GUMMY YEL CLAY
10.5	30.0	S & G
30.0	40.0	S & G
40.0	45.0	S & G W/ TAN CLAY LENS
45.0	70.0	S & G
70.0	75.0	S & G,SOME BRN CLAY
75.0	80.0	S & G
80.0	81.0	SOFT WEATHER LS
81.0	84.0	FIRM GRAY LS

Comments SIGNS OF WATER LEVEL FLUC IN S & G AT 10.5-30'

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
177501	WHITE RIVER STATION FILTRATION PLANT - 150 FT. SOUTH OF #1 WELL AND 150 FEET E OF MICHIGAN AUTO PART ROAD., 940 W. 16TH	Wed, Nov 20, 1974

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER CO.		
Building Contractor			
Drilling Contractor	LAYNE NORTHERN	INDIANAPOLIS IN	
Equipment Operator	WILLIAM WELLS	License:	

Construction Details

Well	*Use:*	*Drilling method:* REVERSE ROTARY	*Pump type:*
	Depth: 79.5	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 81.0	*Material:*	*Diameter:* 30.0
Screen	*Length:* 20.0	*Material:*	*Diameter:* 30.0 *Slot size:* 5.5

Well Capacity Test — *Type of test:* — *Test rate:* gpm for hrs. — *BailTest rate:* gpm for hrs.
Drawdown: ft. — *Static water level:* 13.0 ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Administrative

County: MARION — *Township:* 16N *Range:* 3E
Section: SW 1/4 of the NW 1/4 of the NW 1/4 of Section 35 — *Topo map:* INDIANAPOLIS WEST
Field located by: WDH — *on:* Mon, Jul 26, 1976
Courthouse location by: — *on:*
Location accepted w/o verification by: — *on:*
Subdivision name: — *Lot number:*
Ft W of EL: — *Ft N of SL:* — *Ft E of WL:* 500 — *Ft S of NL:* 850
Ground elevation: 700.0 — *Depth to bedrock:* 79.0 — *Bedrock elevation:* 721.0 620.S — *Aquifer elevation:*
UTM Easting: 570539.4 — *UTM Northing:* 4404910.0

Well Log

Top	Bottom	Formation
0.0	10.0	SAND & MED. GRAV
10.0	15.0	CRS. GRAV
15.0	21.0	MED. GRAV
21.0	25.0	CLAY & BOULDERS HARD GRAY ST.
25.0	35.0	CRS. GRAV SAME BOULDERS
35.0	42.0	MED. GRAV, SAME BOULDERS
42.0	55.0	HARD DRY GRITTY GRAY CLAY
55.0	63.0	CRS. SAND & GRAVEL
63.0	79.5	CRS. GRAVEL W/ MED./FINE SAND
79.5	0.0	HARD BROWN ROCK

Comments MC

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255265	700' N OF 16TH ST & 410' E OF AQUEDUCT DR	Fri, Dec 23, 1988

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER CO		
Building Contractor			
Drilling Contractor	BASTIN LOGAN WATER SERV INC	237 W MONROE ST PO BOX 55 FRANKLIN, IN 46131	(317)738-4577
Equipment Operator	DELFORD DUNN	License:	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 67.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 53.0	*Material:*	*Diameter:* 24.0
Screen	*Length:* 14.0	*Material:* SS	*Diameter:* 24.0 *Slot size:* .060+.120

Well Capacity Test *Type of test:* *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 11.0 ft.

Grouting Information *Material:* BENTONITE *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E
Section: NW 1/4 of the SW 1/4 of the NW 1/4 of Section 35 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: RS *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* 600 *Ft S of NL:* 1750
Ground elevation: 695.0 *Depth to bedrock:* 68.0 *Bedrock elevation:* 627.0 *Aquifier elevation:*
UTM Easting: 570555.9 *UTM Northing:* 4404642.5

Well Log

Top	Bottom	Formation
0.0	2.0	BRN CLAY
2.0	12.0	FN MED COARSE S&G W/ LG RED RO
12.0	30.0	FN MED COARSE S&G REDDISH
30.0	37.0	FN MED COARSE SAND
37.0	41.0	FN MED COARSE S&G
41.0	52.0	HARD GRITTY GRAY CLAY
52.0	53.0	FN MED COARSE S&G
53.0	57.0	VERY SANDY GRAY CLAY
57.0	67.5	FN MED COARSE S&G
67.5	0.0	LS

Comments (WELL NO 10 PROJ NO 840-F)(MC 627)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255260	APPROX 200' N OF 16TH ST AND 20' W OF GENT AVE	Wed, Oct 30, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	RICK O LOWELL C SAM R LEONARD	License: 3303291035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:* ROTARY	*Pump type:*
	Depth: 100.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: BNSL *Depth:* from 95 to 0

Installation Method: *Number of bags used:* 6

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: SE 1/4 of the SW 1/4 of the NE 1/4 of Section 34 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: 1400 *Ft N of SL:* *Ft E of WL:* *Ft S of NL:* 2300

Ground elevation: 695.0 *Depth to bedrock:* 96.0 *Bedrock elevation:* 599.0 *Aquifier elevation:*

UTM Easting: 569959.8 *UTM Northing:* 4404451.5

Well Log

Top	Bottom	Formation
0.0	7.0	BRN CLAY
7.0	25.0	SAND & F-M GRAVEL
25.0	30.0	SAND & FN GRAVEL
30.0	35.0	SAND & LIGHT CLAY
35.0	41.0	LIGHT SAND & MED-BIG GRAVEL
41.0	54.0	GREY CLAY
54.0	96.0	SAND & F-M GRAVEL 72'-75' SAND
96.0	100.0	GREY LS

Comments (DPR 91-18 IGS GAMMA LOG 91-526 AVAILABLE)(MC 599)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255259	ABOUT 50' N OF WATERWAY BOULEVARD, AND 50' E OF RAILROAD TRAKS AT HERDING ST	Mon, Oct 28, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS INDIANA 46206	(317)263-6351
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	LOWELL C SAM R LEONARD F	License: 329 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 90.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:*
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test — *Type of test:* — *Test rate:* gpm for hrs. — *BailTest rate:* gpm for hrs.
Drawdown: ft. — *Static water level:* ft.

Grouting Information — *Material:* — *Depth:* from to
Installation Method: — *Number of bags used:*

Well Abandonment — *Sealing material:* BNSL — *Depth:* from 90 to 1
Installation Method: — *Number of bags used:* 6

Administrative

County: MARION — *Township:* 16N *Range:* 3E
Section: SW 1/4 of the NW 1/4 of the SE 1/4 of Section 34 — *Topo map:* INDIANAPOLIS WEST
Field located by: — *on:*
Courthouse location by: — *on:*
Location accepted w/o verification by: RS — *on:*
Subdivision name: — *Lot number:*
Ft W of EL: 2000 — *Ft N of SL:* 1200 — *Ft E of WL:* — *Ft S of NL:*
Ground elevation: 695.0 — *Depth to bedrock:* 85.0 — *Bedrock elevation:* 610.0 — *Aquifier elevation:*
UTM Easting: 569754.2 — *UTM Northing:* 4404091.5

Well Log

Top	Bottom	Formation
0.0	4.0	BRN CLAY
4.0	14.0	SAND & FN-MED GRAVEL
14.0	27.0	SAND & MED GRAVEL
27.0	37.0	SAND
37.0	44.5	SAND & FN-MED GRAVEL
44.5	52.0	GREY CLAY
52.0	53.0	SAND & MEDIUM GRAVEL
53.0	57.0	GREY CLAY
57.0	84.5	SAND & MEDIUM-BIG GRAVEL
84.5	90.0	GREY LS

Comments (DPR 91-17)(MC610)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
255258	JUST WEST OF WELL #9 AT RIVERSIDE STATION	Fri, Oct 25, 1991

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	INDIANAPOLIS WATER COMPANY	1220 WATERWAY BOULEVARD, INDIANAPOLIS, INDIANA 46206	(317)263-6361
Building Contractor			
Drilling Contractor	ORTMAN DRILLING, INC	241 NORTH 300 WEST KOKOMO INDIANA 46901	(317)459-4125
Equipment Operator	NED O LOWELL C LEONARD F SAM	License: 329 1035	

Construction Details

Well	*Use:* PUBLIC SUPPLY	*Drilling method:*	*Pump type:*
	Depth: 80.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 74.0	*Material:*	*Diameter:* 4.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:* .060

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* 13.5 ft.

Grouting Information

Material: CEMENT *Depth:* from 60.0 to 0.0

Installation Method: *Number of bags used:* 9.0

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 16N *Range:* 3E

Section: NE 1/4 of the SW 1/4 of the SE 1/4 of Section 34 *Topo map:* INDIANAPOLIS WEST

Field located by: *on:*

Courthouse location by: *on:*

Location accepted w/o verification by: RS *on:*

Subdivision name: *Lot number:*

Ft W of EL: 1950 *Ft N of SL:* 700 *Ft E of WL:* *Ft S of NL:*

Ground elevation: 694.0 *Depth to bedrock:* 75.0 *Bedrock elevation:* 619.0 *Aquifier elevation:*

UTM Easting: 569797.5 *UTM Northing:* 4403759.0

Well Log

Top	Bottom	Formation
0.0	4.5	BRN CLAY
4.5	38.0	BRN SAND & MED BRN GRAVEL
38.0	43.5	GREY CLAY
43.5	46.0	SAND & MEDIUM GRAVEL
46.0	52.0	GREY CLAY
52.0	65.0	SAND & FINE GRAVEL
65.0	75.0	SAND & MEDIUM-BIG GRAVEL
75.0	80.0	GREY LS

Comments (DPR 91-16 OW IGS GAMMA LOG 91-524 AVAILABLE)(MC 619)

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
179985		Sun, Jul 01, 1962

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	EVANS MILLING CO.	1730 WEST MICHIGAN ST.	
Building Contractor			
Drilling Contractor	CHARLES KRAUSS & SONS	402 WEST 9TH ST. INDPLS, IN	
Equipment Operator	HARVEY WOLF	License:	

Construction Details

Well	*Use:* INDUSTRY	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 340.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 104.0	*Material:*	*Diameter:* 12.0
Screen	*Length:* 8.0	*Material:*	*Diameter:* 12.0 *Slot size:* 75

Well Capacity Test *Type of test:* PUMPING *Test rate:* 300.0 gpm for 10.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 15.0 ft. *Static water level:* 35.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: SE 1/4 of the NW 1/4 of the NW 1/4 of Section 3 *Topo map:* INDIANAPOLIS WEST
Field located by: JMT *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* 4200 *Ft E of WL:* 1400 *Ft S of NL:*
Ground elevation: 700.0 *Depth to bedrock:* 100.0 *Bedrock elevation:* 600.0 *Aquifier elevation:*
UTM Easting: 569192.6 *UTM Northing:* 4403170.5

Well Log

Top	Bottom	Formation
0.0	3.0	FILL
3.0	10.0	CLAY YELLOW
10.0	25.0	GRAVEL DRY
25.0	40.0	SAND WATER BEARING
40.0	65.0	GRAVEL CLAY BLUE
65.0	70.0	CLAY BLUE
70.0	72.0	SAND & GRAVEL MUDDY
72.0	85.0	CEMENTED GRAVEL
85.0	93.0	WATER GRAVEL & SAND
93.0	100.0	CLAY SANDY
100.0	105.0	LIME BROKEN
105.0	150.0	LIME GRAY
150.0	300.0	LIME BLUE

	300.0	320.0	LIME WHITE
	320.0	340.0	LIME SOFT PUTTY

Comments MC 600

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54004		Mon, Jul 01, 1935

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	EVANS MILLING CO	1730 W MICH ST	
Building Contractor			
Drilling Contractor			
Equipment Operator		License:	

Construction Details

Well	*Use:*	*Drilling method:*	*Pump type:*
	Depth: 93.6	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 26.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* 600.0 gpm for hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 30.0 ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: 1/4 of the SE 1/4 of the NW 1/4 of Section 3 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 668.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:* 574.75
UTM Easting: 569200.0 *UTM Northing:* 4403160.0

Well Log

Top	Bottom	Formation
0.0	5.0	FILL
5.0	49.0	S&G
49.0	59.0	HARD GRITTY CLAY
59.0	870.0	SAND GRAV BOULDERS
80.0	93.25	SAND GRAV

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54021	SHOP 5	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	FRANK FLINT	2100 W MICH	
Building Contractor			
Drilling Contractor	HAMILTON BROS	2426 W 16TH ST, INDPLS	
Equipment Operator	ROBERT EDWARDS	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:*	*Pump type:*
	Depth: 47.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 6.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test — *Type of test:* PUMPING; *Test rate:* 30.0 gpm for hrs.; *BailTest rate:* gpm for hrs.
Drawdown: 20.0 ft.; *Static water level:* ft.

Grouting Information — *Material:*; *Depth:* from to
Installation Method:; *Number of bags used:*

Well Abandonment — *Sealing material:*; *Depth:* from to
Installation Method:; *Number of bags used:*

Administrative

County: MARION; *Township:* 15N *Range:* 3E
Section: SE 1/4 of the SE 1/4 of the NE 1/4 of Section 4; *Topo map:* INDIANAPOLIS WEST
Field located by:; *on:*
Courthouse location by:; *on:*
Location accepted w/o verification by:; *on:*
Subdivision name:; *Lot number:*
Ft W of EL:; *Ft N of SL:*; *Ft E of WL:*; *Ft S of NL:*
Ground elevation: 705.0; *Depth to bedrock:*; *Bedrock elevation:*; *Aquifer elevation:* 658.0
UTM Easting: 568760.0; *UTM Northing:* 4402885.0

Well Log

Top	Bottom	Formation
0.0	25.0	CLAY
25.0	47.0	S&G

Comments MC 658; TMK, IND DEPT OF CONSERVATION, 1954; COPIED FROM CARD LOG 7/19/82

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54018		Wed, Jan 01, 1936

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	NATIONAL MALLEABLE & STEEL	INDPLS	
Building Contractor			
Drilling Contractor	LAYNE NORTHERN		
Equipment Operator		License:	

Construction Details

Well	*Use:* INDUSTRY	*Drilling method:*	*Pump type:*
	Depth: 89.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 18.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test

Type of test: *Test rate:* 300.0 gpm for hrs. *BailTest rate:* gpm for hrs.

Drawdown: ft. *Static water level:* 23.0 ft.

Grouting Information

Material: *Depth:* from to

Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to

Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E

Section: NW 1/4 of the SW 1/4 of the NE 1/4 of Section 4 *Topo map:* INDIANAPOLIS WEST

Field located by: MCBN *on:* Wed, Jan 01, 1992

Courthouse location by: *on:*

Location accepted w/o verification by: *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*

Ground elevation: 708.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:* 607.0

UTM Easting: 568037.0 *UTM Northing:* 4402957.0

Well Log

Top	Bottom	Formation
0.0	4.0	CINDER FILL
4.0	43.0	SOIL & GRAV
43.0	59.0	CLAY
59.0	62.0	CRS SAND
62.0	101.0	CRS GRAV

Comments MC 607

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54024	525 N ARNOLDA	Thu, Apr 19, 1979

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner			
Building Contractor	ALLEN WATTS		
Drilling Contractor	HAMILTON BROS INC	PO BOX 24181,4025 ROCKVILLE ROAD,INDIANAPOLIS,IND 46224	
Equipment Operator	DESTER HARNESS	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* ROTARY	*Pump type:*
	Depth: 47.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 45.0	*Material:*	*Diameter:* 4.0
Screen	*Length:* 3.0	*Material:*	*Diameter:* 4.0 *Slot size:* 60

Well Capacity Test *Type of test:* *Test rate:* 10.0 gpm for 1.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: 5.0 ft. *Static water level:* 35.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: NW 1/4 of the SE 1/4 of the NW 1/4 of Section 4 *Topo map:* INDIANAPOLIS WEST
Field located by: MCBH *on:* Wed, Jan 01, 1992
Courthouse location by: *on:*
Location accepted w/o verification by: SLP SAW 6/14/79 *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 716.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifer elevation:* 669.0
UTM Easting: 567700.0 *UTM Northing:* 4402915.0

Well Log

Top	Bottom	Formation
0.0	47.0	S & G

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54023	N OF MICHIGAN ST ON CONCORD TO ARNOLDS E AND N TO 519 N ARNOLDS	Wed, Jul 30, 1980

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	RONALD GRIPPEN	519 N ARNOLDS INDIANAPOLIS, INDIANA	
Building Contractor			
Drilling Contractor	MILLS PUMP & WELL DRILLING INC	2508 W MICHIGAN ST INDIANAPOLIS, INDIANA	
Equipment Operator	RUSSELL MILLS	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* ROTARY	*Pump type:*
	Depth: 79.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 76.0	*Material:*	*Diameter:* 4.0
Screen	*Length:* 3.0	*Material:*	*Diameter:* 4.0 *Slot size:* 30

Well Capacity Test

Type of test: *Test rate:* gpm for hrs. *BailTest rate:* 5.0 gpm for 2.0 hrs.
Drawdown: ft. *Static water level:* 30.0 ft.

Grouting Information

Material: *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment

Sealing material: *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: NW 1/4 of the SE 1/4 of the NW 1/4 of Section 4 *Topo map:* INDIANAPOLIS WEST
Field located by: MCBH *on:* Wed, Jan 01, 1992
Courthouse location by: *on:*
Location accepted w/o verification by: BRUNS *on:* Thu, Oct 16, 1980
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 717.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:* 638.0
UTM Easting: 567685.0 *UTM Northing:* 4402885.0

Well Log

Top	Bottom	Formation
0.0	1.0	BLANK
1.0	31.0	CLAY GRAY
31.0	65.0	CLAY BLUE
65.0	79.0	SAND BLUE

Comments MC 638

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54025	SEE MAP	

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	NIBLACK	530 N ARNOLDA INDPLS.	(000)635-5673
Building Contractor			
Drilling Contractor	WATER WELLS BY WILHITE	7453 W DOBSON	(317)257-2393
Equipment Operator	CHARLIE SULLIVAN	License: 843	

Construction Details

Well	*Use:* HOME	*Drilling method:* ROTARY	*Pump type:*
	Depth: 44.0	*Pump setting depth:*	*Water quality:* CLEAR
Casing	*Length:* 44.0	*Material:* PVC	*Diameter:* 4.0
Screen	*Length:* 5.0	*Material:* PVC	*Diameter:* 4.0 *Slot size:* .050

Well Capacity Test *Type of test:* AIR *Test rate:* 30.0 gpm for 2.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 24.0 ft.

Grouting Information *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: NW 1/4 of the SE 1/4 of the NW 1/4 of Section 4 *Topo map:* INDIANAPOLIS WEST
Field located by: *on:*
Courthouse location by: *on:*
Location accepted w/o verification by: *on:*
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 718.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifier elevation:* 674.0
UTM Easting: 567635.0 *UTM Northing:* 4402910.0

Well Log

Top	Bottom	Formation
0.0	4.0	SAND
4.0	44.0	S&G

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54084		

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	W MCMANNIS	3444 W WASHINGTON	
Building Contractor			
Drilling Contractor	ROBERT EDWARDS		
Equipment Operator		License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 30.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:*	*Material:*	*Diameter:* 6.0
Screen	*Length:* 5.0	*Material:*	*Diameter: Slot size:*

Well Capacity Test — *Type of test:* PUMPING; *Test rate:* 30.0 gpm for hrs.; *BailTest rate:* gpm for hrs.; *Drawdown:* 25.0 ft.; *Static water level:* ft.

Grouting Information — *Material:*; *Depth:* from to; *Installation Method:*; *Number of bags used:*

Well Abandonment — *Sealing material:*; *Depth:* from to; *Installation Method:*; *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E

Section: NE 1/4 of the NE 1/4 of the NE 1/4 of Section 8 *Topo map:* INDIANAPOLIS WEST

Field located by: MCBN *on:* Wed, Jan 01, 1992

Courthouse location by: *on:*

Location accepted w/o verification by: *on:*

Subdivision name: *Lot number:*

Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*

Ground elevation: 704.0 *Depth to bedrock:* *Bedrock elevation:* *Aquifer elevation:* 674.0

UTM Easting: 567000.0 *UTM Northing:* 4401680.0

Well Log

Top	Bottom	Formation
0.0	24.0	SANDY CLAY
24.0	30.0	SANDY GRAV

Comments MC 674

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54072		Wed, Oct 15, 1958

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	C&B CONST CO INC	3508 ROCKVILLE RD	
Building Contractor			
Drilling Contractor			
Equipment Operator	RASH	License:	

Construction Details

Well	*Use:* HOME	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 40.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 37.0	*Material:*	*Diameter:* 4.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test	*Type of test:* PUMPING	*Test rate:* 10.0 gpm for 0.5 hrs.	*BailTest rate:* 10.0 gpm for hrs.
	Drawdown: ft.	*Static water level:* ft.	

Grouting Information	*Material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Well Abandonment	*Sealing material:*	*Depth:* from to
	Installation Method:	*Number of bags used:*

Administrative	*County:* MARION		*Township:* 15N *Range:* 3E	
	Section: 1/4 of the NE 1/4 of the NE 1/4 of Section 8			*Topo map:* INDIANAPOLIS WEST
	Field located by:		*on:*	
	Courthouse location by:		*on:*	
	Location accepted w/o verification by:		*on:*	
	Subdivision name:		*Lot number:*	
	Ft W of EL:	*Ft N of SL:*	*Ft E of WL:*	*Ft S of NL:*
	Ground elevation: 705.0	*Depth to bedrock:*	*Bedrock elevation:*	*Aquifer elevation:* 665.0
	UTM Easting: 566825.0		*UTM Northing:* 4401525.0	

Well Log

Top	Bottom	Formation
0.0	14.0	TOPSOIL & CLAY
14.0	40.0	SAND

Comments

Record of Water Well

Indiana Department of Natural Resources

Reference Number	*Driving directions to well*	*Date completed*
54069		Sat, Mar 26, 1966

Owner-Contractor	*Name*	*Address*	*Telephone*
Well Owner	C & B BUILDERS	3508 ROCKVILLE RD	
Building Contractor			
Drilling Contractor	HAMILTON BROS	4025 ROCKVILLE RD	
Equipment Operator		License:	

Construction Details

Well	*Use:* OTHER	*Drilling method:* CABLE TOOL	*Pump type:*
	Depth: 305.0	*Pump setting depth:*	*Water quality:*
Casing	*Length:* 52.0	*Material:*	*Diameter:* 6.0
Screen	*Length:*	*Material:*	*Diameter: Slot size:*

Well Capacity Test: *Type of test:* *Test rate:* 60.0 gpm for 5.0 hrs. *BailTest rate:* gpm for hrs.
Drawdown: ft. *Static water level:* 25.0 ft.

Grouting Information: *Material:* *Depth:* from to
Installation Method: *Number of bags used:*

Well Abandonment: *Sealing material:* *Depth:* from to
Installation Method: *Number of bags used:*

Administrative

County: MARION *Township:* 15N *Range:* 3E
Section: NW 1/4 of the NE 1/4 of the NE 1/4 of Section 8 *Topo map:* INDIANAPOLIS WEST
Field located by: MCBH *on:* Wed, Jan 01, 1992
Courthouse location by: *on:*
Location accepted w/o verification by: HCK *on:* Fri, Apr 01, 1966
Subdivision name: *Lot number:*
Ft W of EL: *Ft N of SL:* *Ft E of WL:* *Ft S of NL:*
Ground elevation: 703.0 *Depth to bedrock:* 51.0 *Bedrock elevation:* 652.0 *Aquifier elevation:*
UTM Easting: 566825.0 *UTM Northing:* 4401525.0

Well Log

Top	Bottom	Formation
0.0	10.0	CLAY
10.0	35.0	SAND
35.0	40.0	CLAY
40.0	51.0	S & G
51.0	77.0	SHALE
77.0	305.0	LS

Comments MC 652

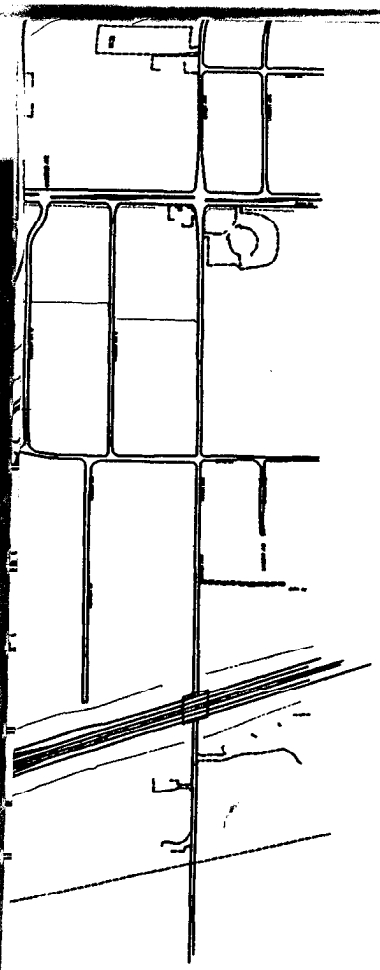


PLATE FC-6
INDIANAPOLIS WATER COMPANY WELLHEAD PROTECTION PLAN FALL CREEK WELLFIELD

ONE & FIVE-YEAR
TIME-OF-TRAVEL BOUNDARIES

1 inch = 1,000 feet

006.0035.001

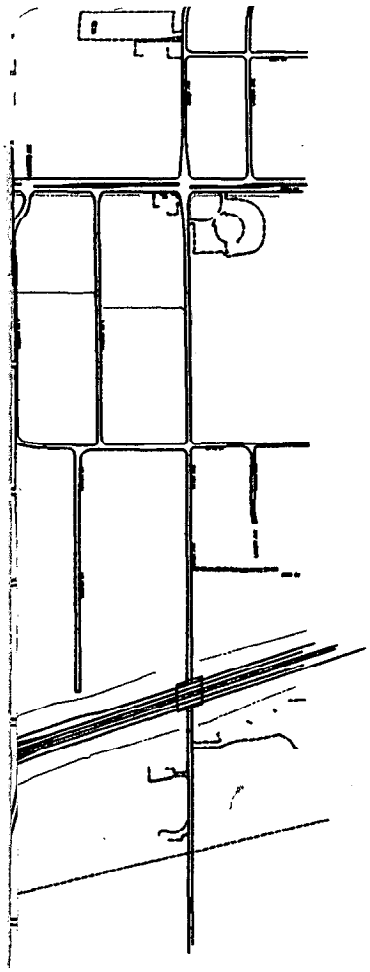


PLATE FC-1
INDIANAPOLIS WATER COMPANY WELLHEAD PROTECTION PLAN FALL CREEK WELLFIELD

BASE MAP SHOWING PRODUCTION WELLS, RESIDENTIAL WELLS, TEST WELLS AND CROSS-SECTION LOCATIONS

SCALE: 1 inch = 1,000 feet

006.0035.002

Certified By: Paul Johnson

PLATE FC-2

INDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
FALL CREEK WELLFIELD
BEDROCK TOPOGRAPHY

Scale: 1" = 1,000'
Contour Interval = 20 feet

Date: 2/23/00 Drawn By: PAJ

006.0035.003

Certified By:

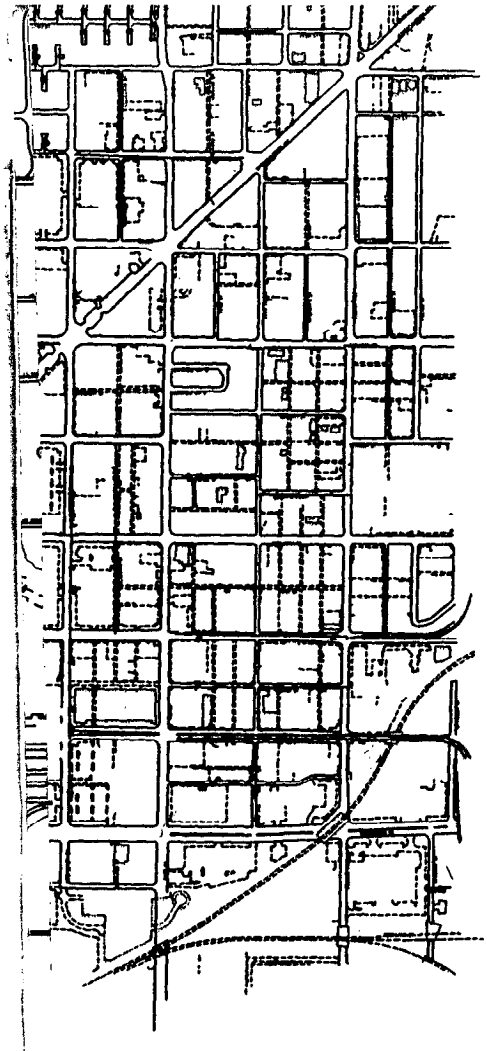
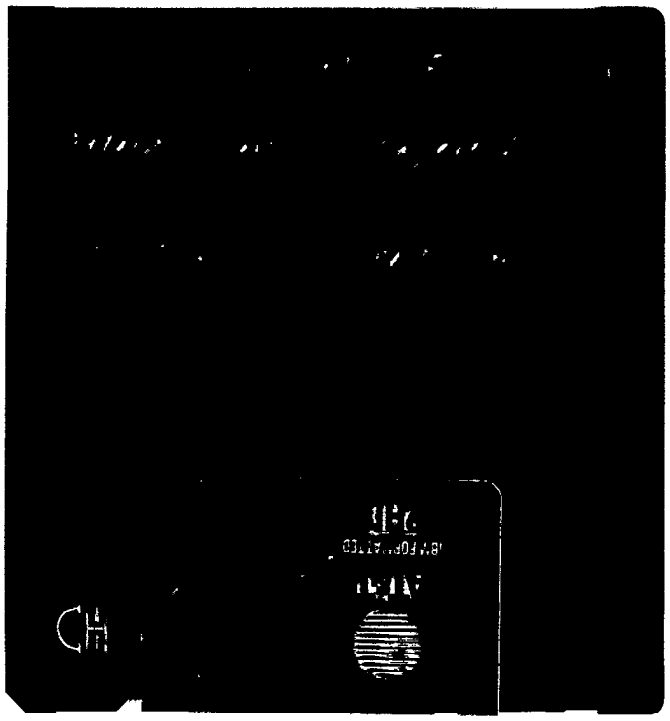


FIGURE 3-4
INDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
RIVERSIDE WELLFIELD

ONE & FIVE-YEAR
TIME-OF-TRAVEL BOUNDARIES
AND POTENTIAL SOURCES
OF CONTAMINATION

SCALE: 1 inch = 1,000 feet

006.0035.004



006.0035.005

PLATE FC-3

NDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
FALL CREEK WELLFIELD
CROSS-SECTION A-A'

(West to East)

0006.0035.0004

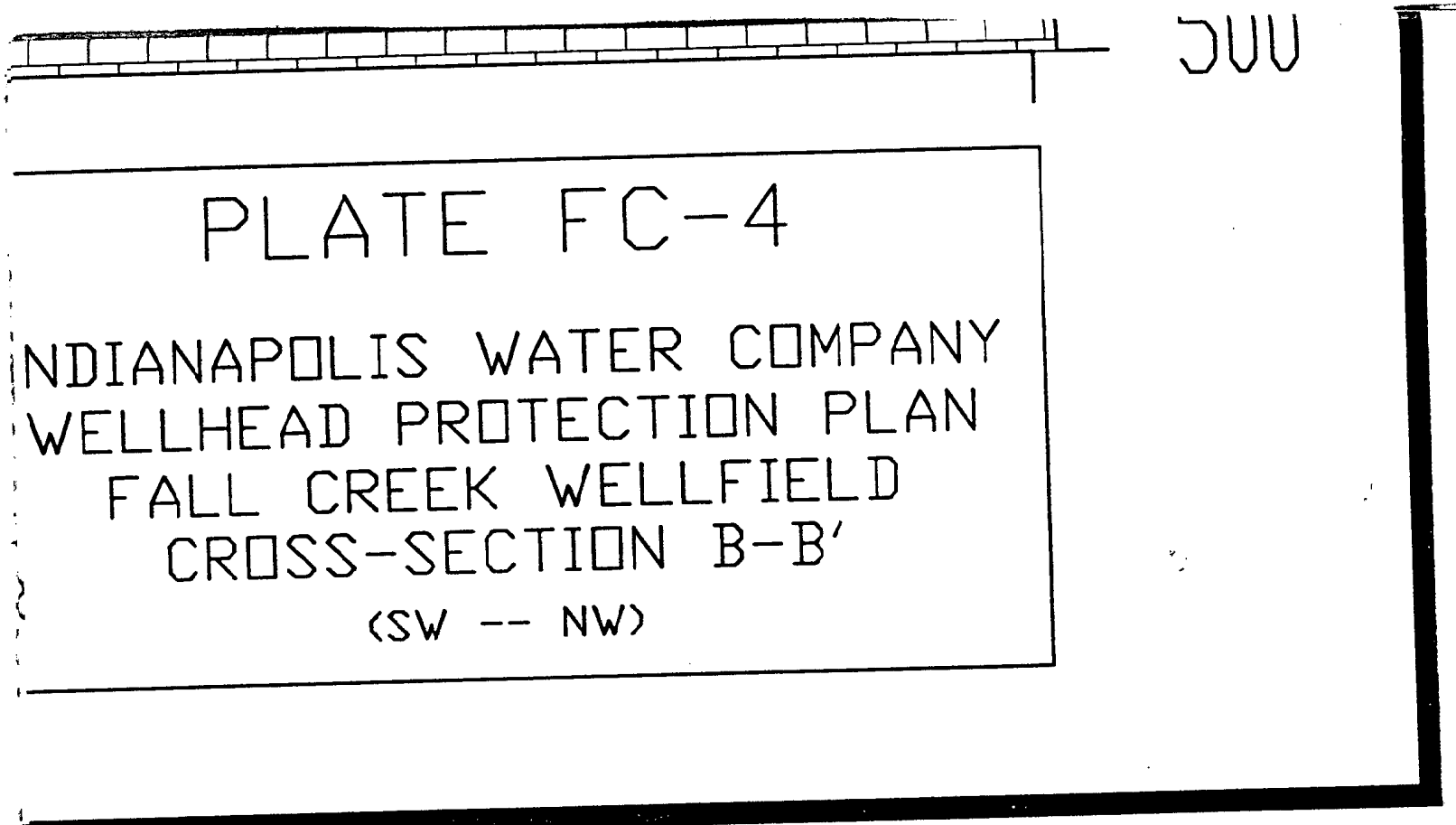


PLATE FC-4

INDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
FALL CREEK WELLFIELD
CROSS-SECTION B-B'

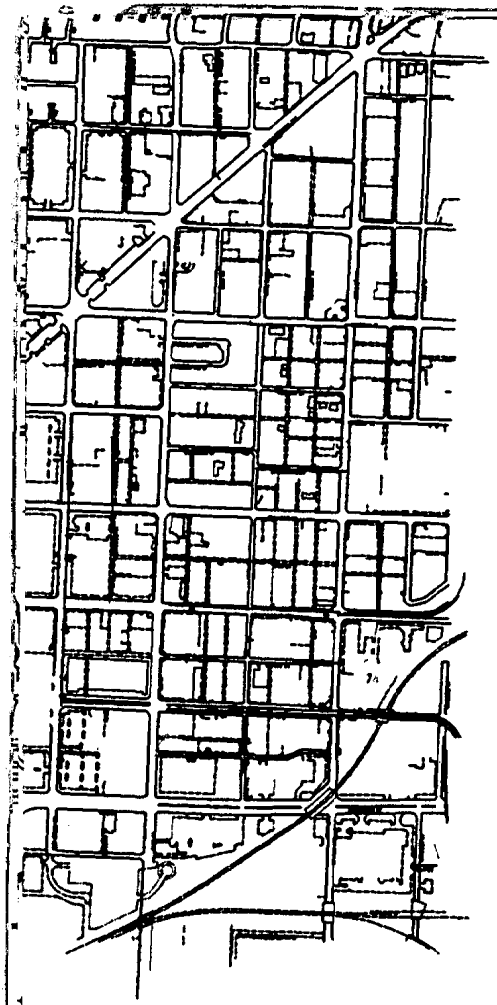
(SW -- NW)

006.0035.007

PLATE FC-5

APOLIS WATER COMPANY
HEAD PROTECTION PLAN
.L CREEK WELLFIELD
ROSS-SECTION C-C'
(NW-SE)

006.0035.008



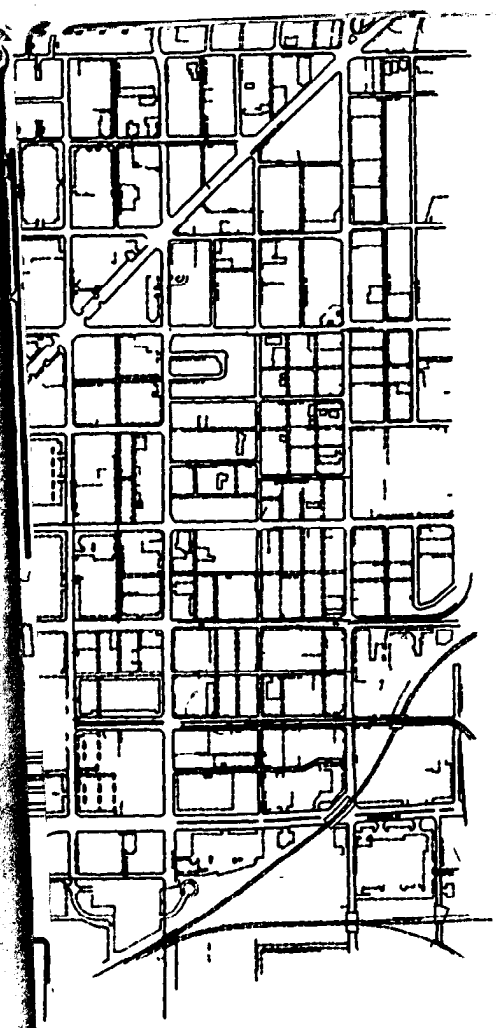
Certified By

PLATE R-1
INDIANAPOLIS WATER COMPANY WELLHEAD PROTECTION PLAN RIVERSIDE WELLFIELD

BASE MAP SHOWING PRODUCTION WELLS, RESIDENTIAL WELLS, TEST WELLS AND CROSS-SECTION LOCATIONS

SCALE: 1 inch = 1,000 feet

006.0035.009



Certified By:

PLATE R-2

INDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
RIVERSIDE/WHITE RIVER WELLFIELD
BEDROCK TOPOGRAPHY

Scale: 1" = 1,000'
Contour Interval = 20 feet

Date: 2/25/00

Drawn By: PAJ

006.0035.010

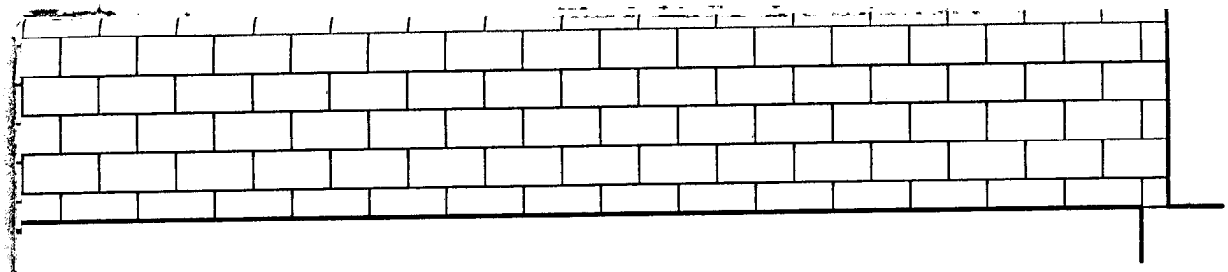
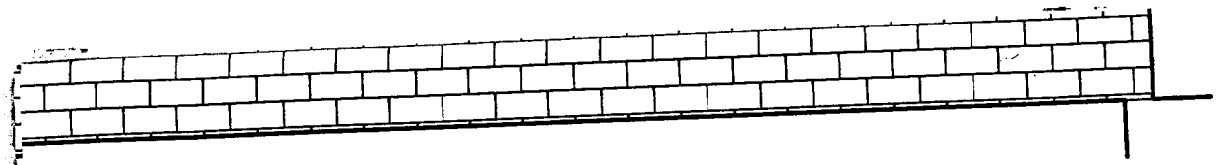


PLATE R-3

INDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
RIVERSIDE WELLFIELD
CROSS-SECTION A-A'
(NW-SE ALONG WHITE RIVER)

006.0035.011



400

PLATE R-4

INDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
RIVERSIDE WELLFIELD
CROSS-SECTION B-B'
(W-E ALONG 16TH STREET)

006.0035.012

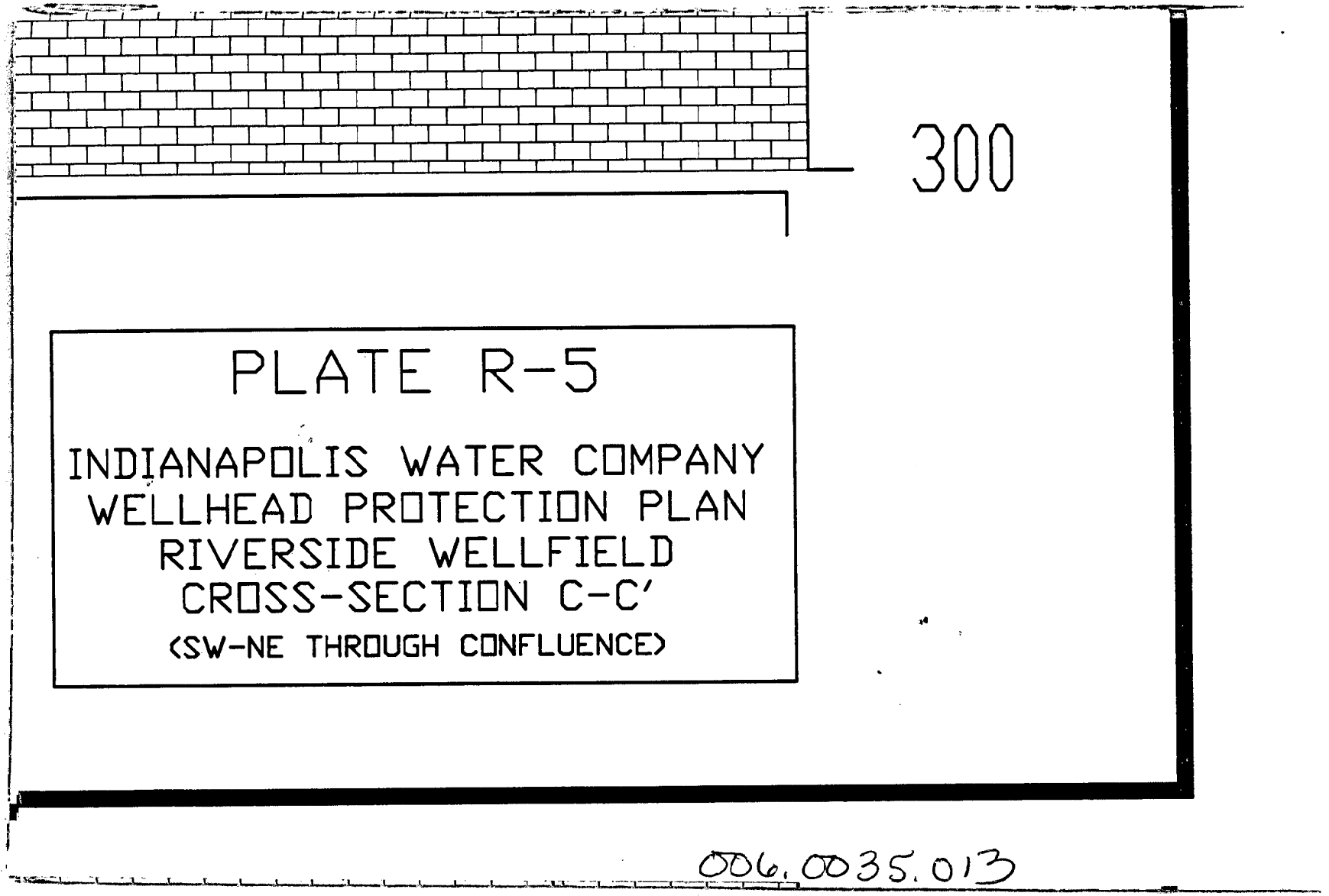


PLATE R-5

INDIANAPOLIS WATER COMPANY
WELLHEAD PROTECTION PLAN
RIVERSIDE WELLFIELD
CROSS-SECTION C-C'

(SW-NE THROUGH CONFLUENCE)

006.0035.013